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ABSTRACT

Focusing on reading comprehension instruction at the word, sentence, paragraph, and larger unit levels, the articles in this volume were drawn from a variety of sources. The three articles in the first section deal with theoretical bases and conceptual concerns. Specific topics covered include the argument for a discourse analysis model, the effect of motivation on attitude and comprehension, and the effects of humorous literary content on immediate and delayed comprehension. The second section includes nine articles that deal with practical suggestions for improving comprehension instruction. The areas covered are word meaning and sentence meaning skills, reciprocal questioning, the effect of advance organizers on main idea comprehension, reciprocal questioning and the directed reading lesson, a comprehension-centered reading program, using content materials for improving comprehension skills, techniques for the improvement of questioning, and "radio" reading. (FL)

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Reading Comprehension at Four Linguistic Levels

Clifford Pennock, Editor

University of British Columbia

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Foreword

Reading is a meaning-giving and meaning-getting process. It must begin and end with an understanding of the printed message. These are widely accepted ideas in the field of reading instruction. Few discussions about reading are free of references to the "context of the message," "the intent of the writer," and "meaning." Yet, the problems associated with helping pupils derive meaning from the printed page remain a formidable challenge for classroom teachers.

Teachers want to know how to insure that very young pupils anticipate meaning from the beginning. They want to help students throughout the grades understand the printed message at various levels of comprehension. Teachers seek assistance in improving their ability to use questioning techniques effectively. By focusing on comprehension, they hope to insure readers who use reading as a resource for living.

The International Reading Association is grateful to the contributors to this volume for providing a readable and useful resource on a topic of great concern to reading educators.

Dorothy S. Strickland, *President*
International Reading Association
1978-1979

Introduction

As Roger Shuy has said, at the onset of reading instruction, the child processes letter-sound correspondences—a skill which is learned and then denied in favor of more cognitive strategies.

Systematic phonics instruction seems to result in expected gains, particularly on test items measuring decoding skills. Comprehension gains in the early grades are best, one might assume, where meaning is continually included even in decoding instruction so that children find meaning and purpose for each activity in reading instruction. In this process, children benefit from what John Downing calls *cognitive clarity*—they see the purpose of learning each skill and then reading as a meaning/message-getting activity.

Beyond the first years of school, reading growth of children seems to drop. Possibly this results from a continuing emphasis (whether needed or not) on language units smaller than the word, thereby shortchanging children's needs in learning to comprehend the word, sentence, paragraph, and beyond or, as Shuy suggests, discourse processing of meaning units.

In many cases, however, superfluous decoding instruction would not seem to be the cause of decreased reading growth as children move beyond the primary grades. In many cases, decoding instruction *is* discontinued as children master decoding. Unfortunately, the position is sometimes taken that little further systematic reading instruction is necessary on the wishful assumption that decoding proficiency equals reading with meaning.

Teachers *are* concerned about improving the teaching of comprehension. Their concern is reflected in a recent survey of International Reading Association members who placed a high priority on further publications on comprehension, both on the theory behind the construct and on the nitty-gritty of instructional techniques.

This volume contains reading comprehension articles from a variety of sources, including IRA's Annual Convention held in Anaheim and the Sixth World Congress on Reading held in Singapore.

In Part One, Theoretical Bases—Conceptual Concerns, Catterson discusses The Argument for a Discourse Analysis Model. For Catterson, the text influences the reader. The reader, however, "who wishes to read well identifies first the overall form of discourse."

Two research reports complete Part One. Mathewson describes the effect of motivation on attitude and comprehension of fourth grade children. Ferris' exploratory study indicates the possibility that humorous content has consistent positive effects upon retention.

Part Two includes a variety of practical suggestions for improving comprehension instruction. At the word level, Morrison subdivides meaning skills into context and word parts. A useful list of context clue types is provided. Kamm systematically describes sentence meaning skills that were identified to assist teachers in focusing comprehension instruction. (The work of both Morrison and Kamm was done with the Wisconsin Design for Reading Skill Development.)

At the sentence meaning level, Manzo introduces reciprocal questioning with the acronym, ReQuest. Investigating paragraph comprehension, VanBlaricom reports some interesting effects of advance organizers on third and fourth grade children's responses to main ideas, topics, and title questions.

"Beyond the Paragraph" is the largest section of Part Two and happily so, for therein lies perhaps the greatest need. Instruction often stops with work on paragraph comprehension. Helfeldt and Lalik adapt reciprocal questioning to the Directed Reading Lesson group situation, a simple but powerful and practical concept whereby children are activated to ask questions. Watson succinctly describes the essentials of a comprehension centered reading program and its psycholinguistic basis.

Five content avenues for improving comprehension skills are discussed by Crowder. One is unique.

Too often, reading teachers ask higher level questions and avoid lower order questions. Smith, in her paper on the improvement of questioning, suggests that sequencing comprehension questions provides for progression from lower to higher cognitive levels.

If reading is a meaning-giving and getting process, then oral reading should also be communication. Greene gives us a worthwhile alternative to round robin (barbershop) reading.

CLIFFORD PENNOCK

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THEORETICAL BASES—CONCEPTUAL CONCERNS

Comprehension: The Argument for a Discourse Analysis Model

Jane Catterson
University of British Columbia

Reading specialists seem to agree that comprehension in reading depends on 1) a word recognition factor and 2) something beyond word recognition. Vague as that statement is, it seems to be the best one has at the moment, a fact somewhat discouraging to teachers who can make some approach to the problem of teaching word recognition but feel no security about teaching comprehension. How is one to go about teaching reading comprehension if even the experts have to admit they don't know what it is or how it comes about?

Although we cannot explain exactly what comprehension *is*, over the years we have gained insights into the kinds of practice that seem to produce the desired results.

DEFINING COMPREHENSION

Specifically, what is the desired result? That is, what does it mean when one "comprehends" discourse? If one restricts oneself to literal comprehension, a sensible answer to the question seems to be: A person can be said to have comprehended something heard or read when he/she can produce a "correct" or reasonable response to a question based on the literal content of the message.

The sensible answer is, of course, not what some would agree with. It is easy to start a lengthy argument about what constitutes a correct or reasonable response to a question, but that is a subject for another discussion. The assumption being made here is that the following would illustrate literal comprehension of a sentence:

Child Reads	*Teacher Asks*	*Child Replies*
Jane went to the store	Who?	Jane
	What did Jane do?	went
	Where did Jane go?	to the store

APPROPRIATE QUESTIONING DEVELOPS COMPREHENSION

If we can agree that the child has answered the teacher's questions correctly, we must ask how the teacher teaches the child to produce such correct answers. The answer suggested is that the teaching of reading comprehension at its most basic level involves a teacher's guiding pupils into thinking/reading habits that will lead them to make correct responses to the material read.

How shall a teacher do the requisite guiding so that children acquire the appropriate thinking habits (skills)? The most common answer is that the teacher regularly must ask explicit questions in a structured way until the child habitually asks such questions of himself as he reads independently.

If it can be accepted that asking appropriate questions is an important avenue to developing comprehension, the next problem must concern the kinds of questions a teacher must ask if comprehension is to be developed in all of the child's reading.

PATTERNS OF DISCOURSE (WRITING PATTERNS) DETERMINE APPROPRIATE QUESTIONS

The point of view expressed here is that question types must be dependent upon the form of discourse or rhetoric to be read. No question or set of question types will serve for use with all forms of discourse. It is proposed that questions should be based on *discourse analysis*.

The basic premise of a discourse analysis model of reading comprehension is that readers will make correct responses to reading material only if they approach that material from the perspective of its overall "writing pattern," that is, its form of discourse (or rhetoric).

When a writer plans to produce prose, he/she selects from the available forms of discourse (narration, explanation, classification, description, argument) the one most suitable for expressing ideas. Having selected the form, a good writer will then produce plans for sections of the piece, proceeding from there to ideas that will become the basis for paragraphs. Finally, the author will produce the smallest unit of discourse, the individual sentence.

Readers who wish to read well first scan the material to identify the form of discourse being used, thus allowing themselves to select the mind set appropriate for processing the material efficiently, while consciously recalling habits of questioning they have been trained to use while reading the designated form of discourse. They next search out other clues to the author's organizational plan, looking for segments of the piece and only beginning to read for detail when they have a generalized view of the organization of the material.

APPLYING A DISCOURSE ANALYSIS MODEL IN TEACHING READING COMPREHENSION: "LARGER" FORMS

Teachers who wish to approach the problem of teaching reading comprehension through discourse analysis will use the Directed Reading Activity to pose questions appropriate for directing attention to the author's intended meaning. As they do this, it becomes apparent that some questions have basic similarities while others are unique to the form of discourse.

Questions for Reading Narrative (Chronological Pattern)

1. What is the *sequence of main events* of the story?
2. Who are the main *characters* and what does *each* do?
3. *Where and when* does the story take place?

Questions for Reading Classification Patterns (Topical Outline Pattern)

1. What is the name of the *main classification* of the selection? (Title)
2. What are the names of the *main subclassifications* of the selection? (Titles of Sections)
3. Are there *subtopics* under each subclassification?
4. What are the major *details* related to each subtopic?

Questions for Reading Explanation Patterns

1. What main question is the overall explanation designed to answer?
2. What "subexplanations" must be understood in sequence?

The word *main* is used frequently in the questions listed for each form of discourse; this fact has led some to suggest that the phrase *reading for main ideas* might be used as a way of designating a skill used in reading most writing patterns, and so reducing the number of different reading skills teachers must teach.

It is agreed that reading for main events and reading for main topics both require the re ıder to cluster small ideas into larger ideas. However, following a sequence of minor events leading into a main event does not require exactly the same kind of thinking as summarizing details to make a main idea. There is a sameness, but conceptualizing that sameness demands a process of generalization; and principles of cognitive psychology suggest that such generalization can take place *in readers* only after they have had experience with specific application of both types of reading and discovered (for themselves) the relationship between the skills demanded. One cannot teach children to read for main ideas in the narrative form and assume that they will emerge from that experience able to read for main ideas in the classification pattern. If they could, all the verbiage used to support reading programs in intermediate and secondary schools would be wasted. The point of view expressed here is that one cannot teach "general" comprehension skills and have them applied specifically. One must teach comprehension of specific forms of discourse and guide readers into generalizations about their thought processes after they have had experience with many forms.

APPLYING THE DISCOURSE ANALYSIS MODEL: "SMALLER" FORMS (SENTENCES AND PARAGRAPHS)

Some approaches to asking questions within some of the larger forms of discourse have been suggested. It must be pointed out, however, that within each larger form of discourse smaller units like sentences and paragraphs are produced by the authors. Each of these units requires processing both in isolation and in relation to the others. Teachers will find it profitable, therefore, to direct attention specifically to the meaning of these units both in the Directed Reading Activity lesson and in specific drill exercises devised to draw attention to the various ways of obtaining meaning from different units.

Practice can be given in paragraph meaning through exercises in outlining, identifying the main idea sentence, deleting the extra sentence, and so on. There are workbooks available with such exercises, and one can put together a kit with answer keys so that children can easily practice the various skills independently.

Sentence meaning can be focused on through connectives practice, phrase meaning practice, and "delete the extra word" practice. Again, one is working from an analysis approach, from whole to parts.

Many of these comprehension exercises are of the type used to improve composition ability also, a fact that reinforces the notion that writing patterns and reading skills have an important relationship.

Two cautions are perhaps necessary. Although it is perfectly appropriate to provide drill exercises for independent practice, teachers must remember that paragraphs and sentences from many forms of discourse must be used and that workbooks generally use more classification material than any other type. Some teacher-constructed exercises will be required.

A second caution relates to the necessity of ensuring that skills practiced in isolation are applied in context. It is perfectly possible for children to answer multiple choice exercises correctly and yet see no relationship between the thought processes used and the processes required to read whole chapters. Teachers must take the responsibility for guiding children (in the Directed Reading Activity) through wide selections in texts by using questions that elicit responses to both larger and smaller forms within whole selections of real discourse. Fragments of discourse analyzed in workbooks do not produce the articulated thought processes needed for reading in the real world of textbooks.

WHY FOCUS ON FORMS OF DISCOURSE RATHER THAN ON SUBJECT MATTER AREAS?

Some special emphasis should be placed on the reasons for using forms of discourse as a basis for teaching reading comprehension rather than using subject matter areas as the focus of attention. To talk about reading in science, reading in social studies, reading in mathematics, or reading in the content areas is vague and may be misleading. Reading in science may involve books of the classification

type, and of the explanation plus experiment type. Some books in social studies are of the classification type, but others are problem centered and cannot be read in the same way as books of the classification type. To talk about reading in a specific content area without specifying the forms of discourse to be read, is an oversimplification and probably militates against the process of generalization. If the teacher of social studies teaches a student to read analytic material, and calls it by its name, and a teacher of biology does the same thing with different material, generalizations about forms of discourse and, hence, about reading skills are developed inductively.

The Moderating Effect of Extrinsic Motivation upon the Attitude/Comprehension Relationship in Reading

Grover C. Mathewson
Florida International University

Teachers are quick to point out that children's attitudes toward the content of a reading selection influence the time they spend with that selection and their comprehension of it. That conclusion, it would seem, is only common sense. Children who like sports would be expected to pay more attention to and better comprehend sports stories than other reading matter.

The effects of attitude upon comprehension have not been studied closely in the literature. Two studies, one by Bernstein (*3*) and another by Shnayer (*18*), appeared to show a clear effect of favorable attitude toward the content of reading selections upon comprehension of those selections. Another study by Groff (*8*) was able to show the effect for critical reading, but not for literal reading.

These experimental results suggest that attitude toward content may facilitate the comprehension of reading selections, but results also indicate a need for further investigation. Why did Groff's study show the effect only for critical reading? Is the facilitating effect dependable and, if not, why?

In an effort to answer some of these questions, Mathewson (*13*) formulated a theoretical model relating attitude to reading comprehension. His intention in developing the model was to provide a

heuristic device by which predictions concerning the relationship between attitude and comprehension might be generated and refined. One of the central concepts of the model was that attention and comprehension during reading are determined by 1) a specific motive or combination of motives energizing reading and 2) a predominating attitude toward the content of a reading selection.

If reading is determined by attitude toward content and relevant motive separately, it was reasoned that there could be circumstances in which motive to read might sustain reading comprehension even in the absence of a favorable attitude toward content. For instance, a child might be prompted to read a disdained story and to comprehend it well if he believes that a reward will follow. Similarly, a student motivated by test anxiety might read a chapter to pass a course even though he dislikes what he is reading. In such situations, it would appear that attitude toward content is unrelated to comprehension.

On the other hand, it might be expected that attitude toward content would be related closely to comprehension if the primary energizers of reading are such motives as curiosity (*16*) or need for self-actualization (*12*:46). For these motives, favorable attitude toward content of reading selections would be expected to develop as the reader began to experience motive fulfillment. This favorable attitude would spur reading comprehension. Alternatively, nonfulfillment of the motives would lead to unfavorable attitude toward content, slowing or ending the comprehension process. Thus, attitude and level of comprehension might be expected to vary together since motive to read, attitude toward content, and comprehension would be interconnected causally.

It appeared that there were two distinctly different circumstances. In the first, attitude toward content was unrelated to comprehension processing because reward for reading was external—a case of *extrinsic motivation* for comprehending. In the second, reward was in the reading act itself through satisfaction of *intrinsic motives*, and therefore attitude toward content became linked to mobilization of the comprehension mechanisms. It seemed that, in cases in which motivation for reading is extrinsic, there is no relationship between attitude toward content and degree of comprehension but, in cases in which motivation is intrinsic, such a relationship exists (*19*).

If extrinsic and intrinsic motives to read differ in the ways indicated, some instances in which attitude toward reading was shown

to have no influence upon comprehension may be explained. For instance, it may have been possible to explain Groff's failure to find a relationship between attitude toward content and literal comprehension by the interference of a strong extrinsic motive. This motive may have elevated the comprehension of both liked and disliked selections, thus precluding any relationship between liking and comprehending.

In order to test the possibility of this kind of effect, it was hypothesized that strong extrinsic motivation—motivation external to the reader and directly manipulated by the experimenter—would be able to maintain comprehension whether attitude toward content was favorable or unfavorable. It was further hypothesized that reduction of this extrinsic motivation would cause a reduction in the comprehension of unfavorably viewed content but not favorably viewed content. It was expected that the comprehension of favorably viewed content would continue to be maintained by such intrinsic motives as curiosity, self-actualization, or the desire to know and understand.

METHOD

Subjects

The subjects of the study were ninety fourth grade students from two public elementary schools in Riverside, California. The forty-two students from School A came from a large, team-taught room, while the forty-eight students from School B came from two separate classrooms. The groups from both schools included equal numbers of boys and girls. Except for this balancing, students were selected randomly for participation.

Both of the schools used in the study were located in middle socioeconomic-level neighborhoods. The mean reading grade score for School A was 4.18 (SD = 1.82), very close to the 3.98 (SD = 1.56) mean reading grade score for School B. Students whose reading grade scores fell below 2.0 were not included in the study. All reading score results were based on the Stanford Achievement Test (*11*).

Design

The specific predictions of the study were that comprehension of liked and disliked stories would be the same under high extrinsic

motivation but that comprehension of the disliked story would decrease as extrinsic motivation was lowered. Comprehension of the liked story was expected to remain high because intrinsic motivation, stimulated by the favorably viewed content, was expected to stimulate the reader to continue reading efficiently even in the absence of extrinsic motivation.

In order to test these predictions, a 2 x 3 x 2 experimental design was constructed. The first factor, *story type*, consisted of a liked story and a disliked story. The second factor, *extrinsic motivation*, had three levels: high, moderate, and low. The third factor was *reading ability*. The group having reading grade scores of 4.0 or better on the SAT comprised the high reading group. Those with scores below 4.0 comprised the low group.

Each subject was assigned one story type and one level of extrinsic motivation. Assignment was made on a random basis until the cells of the 2 x 3 grid formed by story type (two levels) and extrinsic motivation (three levels) began to fill with fifteen subjects per cell. At this point, subjects were assigned to the cells not yet full. At the end of the experiment, all cells in the 2 x 3 grid contained fifteen subjects for a total of ninety in the study.

The Story Variable

In order to test the hypotheses, it was necessary to identify two stories. One of them had to have content eliciting unfavorable attitudes from the subjects, while the other had to elicit favorable attitudes. In addition, both had to be written at the same readability level to reduce the possibility that a difference in readability would influence the comprehension scores.

The task was done by writing twelve stories, then asking ten fourth grade pilot subjects to rate these on a semantic differential scale (see Procedure). Half of the stories had been written to be liked by fourth graders, while the other half had been written to be disliked. All stories were written at the third grade level as measured by the Fry Graph for Estimating Readability (6). This level of readability was chosen in order that most fourth grade subjects could comprehend the stories if they tried.

Mean ratings were taken on all stories, and the most liked story (henceforth, called the *liked* story) and the most disliked story (the

disliked story) were chosen for use in the experiment. The liked story, "A Boy Named Bob," described the life of a boy who liked sports and whose father was a firefighter. The disliked story, "A Box in a Room," was decidedly dull, having no action and merely describing the interior of an unpleasant, dusty room.

Both stories were prepared in pica typeface and mounted in attractive plastic covers for use in the experiment.

The Motivation Variable

With the story variable created, it was necessary to design a method for stimulating a predetermined level of extrinsic motivation. The first level, high extrinsic motivation (HEM), was operationally defined by saying the following to the subject:

> Now, will you please sit here at this table. I will be gone for a few minutes, but I have something here for you to read. It is very important that you read this story carefully because it will tell me how well you can read. When I come back, I will give you a test to find out how much you have learned from the story. Read as well as you can so that I can see how good you are. OK?

It was expected that these instructions would stimulate test anxiety and that this extrinsic motive would be capable of sustaining reading in spite of attitude toward content.

The second level of extrinsic motivation, moderate extrinsic motivation (MEM), was created by saying the following to each subject:

> Now, will you please sit here at this table. I have to be gone for a few minutes, but I have something that maybe you will like to read while I am gone. All I care about is how much fun you have with the story. It may be exciting to you, but if it is not, don't worry about it. When I get back, we'll start on our work. OK?

It was expected that the expressed desire of the experimenter would provide some extrinsic motivation to read, but much less than in HEM condition.

The third level of extrinsic motivation, low extrinsic motivation (LEM), was created by saying the following to each subject:

> Now, will you please sit here at this table. I will be gone for a few minutes. If you want to, you may play with anything on the table in front of you. Just have fun, and I will be back soon.

On the table in front of each subject were several toys and also one of the stories. The story was placed in a position giving the child easy access to it. It was expected that this condition would produce least extrinsic motivation to read, and that any motivation would come only from intrinsic motives the story would be able to stimulate.

Procedure

One by one, the fourth grade subjects were tested in experimental rooms assigned by the respective principals at the two schools. Upon arrival, each subject was introduced to a seven-point semantic differential scale mounted on a large fabric board. The fabric of the board allowed objects with special hook tape to be attached and unattached repeatedly. The materials, available under the Hook N' Loop trademark (*15*), were used to construct the round, yellow sun placed over the *good* side of the semantic differential scale and the blue cloud placed over the *bad* side. Further, a smiling figure drawn on construction paper ornamented the good end, while a similar but frowning figure was placed at the bad end.

The polar opposites for the scale were selected from DiVesta (*4*) and Osgood, Suci, and Tannenbaum (*17*). These were good/bad, nice/awful, pretty/ugly, and wonderful/terrible. Each word was written on a small rectangular square of cardboard which could be attached to its appropriate end of the scale. Only one pair ever anchored the ends of the scale at one time. For the practice session, only the good/bad poles were used.

After the subject was introduced to the scale, the experimenter began a careful instruction in its use, explaining 1) that the board was intended to show how much students like some things, 2) that students could show their liking by placing a small doll at a point somewhere between the good and bad poles of the scale, and 3) that the middle showed neutral things (neither liked nor disliked).

The experimenter then placed the doll (hook tape on back; male for boys, female for girls) in each of the seven possible positions on the semantic differential scale, giving short descriptions of the evaluative meanings of each position. Following this step, the practice session began. Each subject was shown, in random order, a card with one of the following listed on it: Big Candy Bar, New Bicycle, Christmas Vacation, Little Piece of Cloth, Rock, Block of Wood, Mean Teacher,

Spanking, and Cut on the Finger. These had been chosen in an earlier experiment (*13*) to allow children to rate good things (first three items), neutral things (middle three items) and bad things (last three items).

After being shown each item the subject was asked to rate the item along the good/bad dimension represented on the scale. As the subject did so, the experimenter noted whether the ratings appeared to make sense. If the ratings appeared unusual, the experimenter questioned the subject and gave more training if necessary.

Following the practice rating of the nine items, the experimenter reseated the subject at a small table and gave instructions appropriate to one of the motivational conditions: High extrinsic motivation (HEM), moderate extrinsic motivation (MEM), or low extrinsic motivation (LEM). The instructions for HEM, MEM, or LEM were always exactly as those above. Any questions the subject had were answered. The subject then began a ten-minute session with the randomly assigned story. The experimenter took a position behind the subject, only occasionally checking the subject's progress.

After ten minutes had elapsed, the experimenter reseated the subject in front of the semantic differential board and asked the subject to rate the story by using the seven-point scale. This step was done even if the subject had paid no attention to the story. After the subject had made a rating on the good/bad dimension, the pretty/ugly poles were substituted, and the subject rated the story again. This procedure was repeated for the nice/awful and the wonderful/terrible poles. The subject's ratings were recorded on a previously prepared sheet.

After rating the story, each subject answered seven multiple-choice questions written to test literal level comprehension of the story. Each of the questions had four alternatives and was presented visually to the subject on a 3 x 5 card. As the subject viewed each question, the experimenter read it aloud. The subject's responses to the questions were recorded.

Finally, each subject was thanked for participating in the study and escorted back to the classroom.

RESULTS

Two analyses of variance were performed to determine whether the data supported the hypotheses. The factors of both analyses were

Motivation (three levels), Story (two levels), and Reading Ability (two levels). The analysis of the main effects and interactions of the motivation factor was done with Helmert contrasts (5:63), a procedure in which a first contrast (M_1) compared the HEM condition to the combined MEM and LEM conditions. A second contrast (M_2) compared MEM condition to LEM condition.

The first of the two analyses of variance treated the attitude data. The dependent variable in this analysis was a single index of liking for stories. This index was calculated for each subject by adding the results of the four semantic differential dimensions and dividing the result by four. The means and standard deviations of these composite scores are shown in Table 1.

Table 1. Means and Standard Deviations for Attitude*

Motivation	High				Moderate				Low			
Story	Liked		Disliked		Liked		Disliked		Liked		Disliked	
Reading Ability	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
Mean	5.61	5.75	3.40	5.10	6.04	5.94	5.28	3.54	5.64	4.88	3.52	4.58
SD	1.01	1.22	1.27	1.70	.75	.99	1.05	1.11	.40	.80	1.41	.97

*A high mean score indicates a favorable attitude toward the story read. The highest possible mean score is 7.00.

The analysis in Table 2 clearly shows that the expected difference in attitude between the liked story and the disliked story was significant ($F = 39.62$; $df = 1, 78$; $p < .001$). This finding was important because, if the difference in liking between the two stories had not appeared, further analysis would have been useless.

Two unexpected interactions occurred in the analysis shown in Table 2. First, there was an interaction between the first motivation contrast, M_1, and reading ability. This contrast showed that high reading ability subjects rated stories in general highest when *not* under strong extrinsic motivation but that low reading ability subjects rated stories most favorably when under strong extrinsic motivation. This important finding is discussed further in a later section.

The second analysis of variance was performed on the comprehension question scores. These scores were calculated by totalling each subject's correct responses to the multiple-choice

Table 2. Analysis of Variance for the Attitude Scores

Source of Variation	df	Mean Squares	F-Ratio
Motivation (M)			
M_1 (1 vs. 2 + 3)	1	.38	.32
M_2 (2 vs. 3)	1	4.13	3.54
Story (S)	1	46.22	39.62***
Reading Ability (RA)	1	.03	.03
M X S			
M_1 X S	1	.87	.75
M_2 X S	1	.75	.64
M X RA			
M_1 X RA	1	7.87	6.74**
M_2 X RA	1	4.02	3.44
S X RA	1	1.63	1.40
M X S X RA			
M_1 X S X RA	1	2.66	2.28
M_2 X S X RA	1	11.05	9.47**

**$p < .01$
***$p < .001$

comprehension test questions. The means and standard deviations of these scores appear in Table 3. The analysis of variance results are given in Table 4.

Table 4 clearly shows that the Motivation factor caused a strong difference in comprehension. The first motivation contrast, M_1, was significant at the .001 level ($F = 12.30$; $df = 1, 78$). The HEM mean was 6.23 while the mean of the (MEM + LEM)/2 scores was 5.05. The second motivation contrast, M_2, was also significant. In this contrast, the MEM condition (mean = 5.50) differed significantly from the LEM condition (mean = 4.60). Thus, the results showed a decrease in comprehension with the lowering of extrinsic motivation.

The next significant result occurred between the Reading Ability groups. The High Reading Ability group mean was 5.95, while that of the Low group was 4.93 out of a possible 7.00. This difference was expected.

The last result in the comprehension analysis was most interesting. Before this result was interpreted, however, it was noted that the comprehension means for the liked story and the disliked story were about the same under HEM. The mean of the liked story was 6.33 under HEM, while the mean of the disliked story was 6.13. A t test comparison showed that this difference was not significant ($t = .08$; $df = 28$; $p > .05$).

Table 3. Means and Standard Deviations for Comprehension

Motivation	High				Moderate				Low			
Story	Liked		Disliked		Liked		Disliked		Liked		Disliked	
Reading Ability	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
Mean	6.57	6.12	6.40	5.60	6.57	5.75	5.50	4.14	5.00	4.12	5.50	4.11
SD	.79	1.73	.70	.55	.79	1.03	.76	2.61	1.92	2.17	1.76	1.62

Table 4. Analysis of Variance for Comprehension Scores

Source of Variation	df	Mean Squares	F-Ratio
Motivation (M)			
M_1 (1 vs. 2+ 3)	1	28.01	12.30***
M_2 (2 vs. 3)	1	12.15	5.34*
Story (S)	1	4.44	1.95
Reading Ability (RA)	1	18.80	8.26**
M X S			
M_1 X S	1	.17	.07
M_2 X S	1	8.71	3.83*
M X RA			
M_1 X RA	1	1.17	.51
M_2 X RA	1	.00	.00
S X RA	1	1.20	.53
M X S X RA			
M_1 X S X RA	1	.03	.02
M_2 X S X RA	1	.01	.00

*$p < .05$
**$p < .01$
***$p < .001$

In the light of this near equality of comprehension of liked and disliked stories under HEM, the last significant interaction in Table 4 was very important. It showed that there was only one condition outside of HEM in which comprehension remained high. That was the condition in which the liked story was read under MEM. The mean score in this condition was 6.18. In the other conditions, the means were low. The disliked story mean under MEM was 4.87; the liked story mean under LEM, 4.53; and the disliked story mean under LEM, 4.67.

Taken together, the preceding *t* test result and analysis of variance interaction support the following conclusions: 1) Comprehension of both liked and disliked stories was high under HEM; 2) comprehension of the liked story remained high under MEM, but that of the disliked

story dropped; and 3) comprehension of both liked and disliked stories dropped under LEM.

DISCUSSION

The results partially supported the predictions of the study. First, it had been predicted that comprehension of both a liked and a disliked story would be high if extrinsic motivation were sufficiently strong. The comprehension results supported this prediction.

Second, it had been predicted that under diminished extrinsic motivation, comprehension of a liked story would remain high, but comprehension of a disliked story would fall. This prediction was supported for the moderate level of extrinsic motivation. At this level, comprehension of the disliked story dropped, but comprehension of the liked story remained high. This continued high comprehension of the liked story may be interpreted as a result of favorable attitude toward the story's content.

Finally, it was clear that the prediction of high comprehension of a liked story under low extrinsic motivation was not supported. Under the condition of low extrinsic motivation, the comprehension of both the liked and the disliked story was low. This unexpected finding may be explained in at least two ways. One answer may be that the instructions under the condition of low extrinsic motivation did not call attention to the liked story. There were other distracting items on the table during the period of exposure to the story. Thus the subjects may have simply paid insufficient attention to the story even to become interested in it. If this explanation were correct, it might suggest that teachers must exert some level of extrinsic motivation if only to orient the attention of readers to materials which might interest them.

Another answer may be that the liked story was simply not liked enough. It may have been that though the mean semantic differential rating for the liked story was 5.63 (SD = .94) with 7.00 possible, higher than the mean of the disliked story, the subjects may not have found it good enough to read without being spurred by extrinsic motivation. Again, this explanation would suggest that some level of extrinsic motivation may be necessary to stimulate reading.

The two above explanations suggest that, in some school situations, moderate levels of extrinsic motivation may be necessary

for children to read even interesting stories with high comprehension. However, another aspect of the analysis suggests that extrinsic motivation should be used with caution. This is the significant interaction between the first motivation contrast, M_1, and Reading Ability. This contrast showed that high ability readers (as defined in this study) rated stories highest when not under strong extrinsic motivation. This finding is important because teachers can refrain from using extrinsic means to motivate good readers. If teachers do so, it is possible that the good readers' attitudes toward the reading selections will drop.

The finding that good readers tend to rate stories low under conditions of high extrinsic motivation is consistent with Lepper and Greene's finding (*10*) that children viewed an activity less favorably after being motivated to do it by extrinsic means. Bem (*1, 2*) and Kelley (*8, 9*) provide a theoretical framework as an explanation. They proposed that, under strong extrinsic motivation, individuals perceive themselves to have done an activity because an external agent willed it, not because they themselves wanted to do it. Thus, after doing an activity for extrinsic reasons, they perceive themselves as being disinterested in the activity. In the present study, the condition of strong extrinsic motivation may have led good readers to perceive of themselves as reading under compulsion, not because the stories were interesting to them. This attitude may have lessened their ratings of the stories.

The Bem and Kelley explanation fits the results for the good readers but not for the poor readers. The poor readers actually rated the stories higher under strong extrinsic motivation. This difference in response to extrinsic motivation may give a clue to the motivational dynamics of poor readers. If pushed externally, these readers may like what they read. If not pushed, they both comprehend less and like less what they do comprehend. While this interpretation should be viewed with extreme caution, the implications for practice seem to be that teachers should use moderate or low extrinsic motivation with good readers but should consider stronger extrinsic motivation with poor readers.

In summary, the central findings of the study were that strong extrinsic motivation can support comprehension whether a story is liked or disliked but that, under moderate extrinsic motivation, a story

has to be liked in order to be comprehended optimally. These results were important not only because they explain some failures to find an influence of attitude upon comprehension but also because they support the theoretical model proposed by Mathewson (*14*). Support for the model increases confidence in its predictive ability and in its potential for explaining the role of attitude in the reading process. Further investigation of the model's implications thus appears to be indicated.

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The Effects of Humorous Literary Content On Immediate and Delayed Reading Comprehension

Donald R. Ferris
Purdue University

Positive attitudes toward and interest in the content to be understood and learned have long been recognized as enhancing factors in motivation for learning (*6, 7, 14, 22*). In the teaching of reading, for example, this principle has been employed in teaching reading skills and in encouraging recreational reading by capitalizing upon children's positive attitudes and interests.

Positive reactions to humorous literary content have been mentioned frequently in studies of children's interests. In a study of 4000 junior high school students, Zeller (*28*) found that humor was the quality most preferred by both girls and boys in the stories they read. Kyte (*12*) found that children favored narrative poems which contained humor and dramatic action together with pleasant experiences. Frank (*8*) reported that over fifty million comic books of some three hundred different titles were sold in the 1950s. Granting that comic books (so-called) are not all humorous in content and, further, that not all were bought by juveniles, these data still indicate popular interest in humorous content. Gunderson (*9*) found that seven-year-olds preferred "funny" books—those containing ridiculous, unbelieveable, surprising, imaginative, and absurd incidents. Norvell (*18*) found that humor was one of the elements in stories favored by boys in grades three to six. In a study of 275 first grade children, Rogers and Robinson (*20*) found that humorous stories are

surpassed in reading preference only by those containing make-believe and happiness.

Despite considerable evidence that children have positive attitudes toward and interest in humorous literary content, this writer knows of no systematic investigation of the effects upon learning of humorous literary content. A review of the *Comprehensive Dissertation Index*, 1861-1972, yielded only three doctoral dissertations (*13, 1, 16*) dealing specifically with humor in children's literature. A review of the *Dissertations Abstracts International* covering the period from January 1973 to June 1976 yielded only one other dissertation (*17*) dealing with humor in children's literature.

From this review of research on humorous literary content in children's literature, three conclusions seem warranted: 1) children are interested in humorous literary content; 2) there has been little research dealing with the effects of children's humorous literature on learning; and 3) because children are interested in humorous literary content and interest in a subject appears to enhance learning, the investigation of the effects of humorous literary content upon comprehension is a promising area.

Comprehension continues to be an area of major concern in the teaching of reading. As Smith and Dechant have observed, "Without comprehension reading is a mere verbalism." In spite of the importance of comprehension, knowledge about it remains at a rather primitive level. This state of knowledge has not deterred the efforts of reading researchers to define comprehension. Either explicitly or implicitly, researchers (even those investigating basic word recognition processes) are using some definition of comprehension. For this study, Yoakam's definition (*27*) of comprehension will be used:

> Comprehending reading matter involves the correct association of meanings with word symbols, the evaluation of meanings which are suggested in context, the selection of the correct meaning, the organization of ideas as they are read, the retention of these ideas, and their use in some present or future activity.

This definition has been adopted primarily because of its explicit recognition that comprehension requires not only an immediate understanding of the content read but is a process requiring long-term retention of the meanings gained. It is this retention over time which is one of the concerns of this study.

PURPOSE

This exploratory study was conducted to provide information regarding the following questions:

1. Are there effects upon immediate and delayed comprehension of humorous and nonhumorous literary content?

2. Are there differences in immediate and delayed comprehension of humorous and nonhumorous literary content within and between grades two and four?

3. Are there differences in immediate and delayed comprehension of humorous and nonhumorous literary content between boys and girls?

4. Are there differences in immediate and delayed comprehension of humorous and nonhumorous literary content among elementary school children of differing socioeconomic status?

SUBJECTS

The experimental population of this study was drawn from the total population of grades two and four in Lebanon, Indiana. From the original population of 459 boys and girls, 218 met the two criteria for inclusion in the initial phase of the study:

1. Reading achievement scores at or above the readability levels of the passages (1.5 for Grade Two and 3.5 for Grade Four).

Students' reading achievement scores for second and fourth grades were based, respectively, upon Primary I, Form A, and Primary III, Form A, of the 1973 revision of the Stanford Reading Tests administered in May 1975. It should be emphasized that since the reading scores upon which subjects were selected for this study were approximately one year old at the time of this study, their reading abilities were probably underestimated, thereby increasing the probability that little difficulty would be encountered in reading the passages.

2. Passage perception congruent with the author's intent (the humorous passage was to be perceived as *funny* and the nonhumorous perceived as *true*).

When the total school population was tested again in six weeks, the experimental population was reduced from 218 subjects to 206 through attrition. The findings of this study, then, are based on a

population of 95 second grade children (42 males and 53 females) and 111 fourth grade children (44 males and 67 females). The subjects were drawn from four schools: 25 from a school serving children of lower socioeconomic status which qualifies under the guidelines for Title I of the Elementary and Secondary Education Act; 43 from a rural school serving a primarily agricultural population; and the remaining 64 and 72 subjects respectively, from two schools serving children from primarily middle to upper socioeconomic status.

METHOD

Four original literary passages*—two fanciful, humorous (H) and two factual, nonhumorous (NH)—were written, one of each type for grades two and four. The readability of the passages was carefully controlled by the Spache Readability Formula (*23*: 195-207).

Table 1. Passage Readability Estimate

Grade Level	Passage Content	Total No. of Words	No. of Sentences	No. of Hard Words	Average Sentence Length	Estimated Grade Level
2	nonhumorous	188	30	3	6.2	1.63
2	humorous	183	30	0	6.1	1.4
4	nonhumorous	162	18	18	9.0	3.22
4	humorous	211	21	18	10.0	3.34

Readability estimated by the Spache Readability Formula

Hunt (*10*) suggests a measure of syntactic complexity which he calls a "minimal terminable unit" or "T-unit" consisting of a main clause, plus all subordinate clauses or other nonclausal structures attached to or embedded in it. Hunt (*10*) has found that more mature writers produce sentences which contain T-units with a greater number of words and with a greater number of T-units per sentence. These two measures, the mean number of T-units per sentence and the number of words per T-unit, were applied to the passages used in this study to provide indices of syntactic complexity not provided by the Spache Readability Formula. The two measures are shown in Table 2.

*The writer gratefully acknowledges the assistance of Avis Jean Casey from whose original writing the final literary passages were developed.

It will be noted that both the humorous and nonhumorous passages for grade two are less complex than the passages for grade four and that the two indices are roughly comparable; this suggests that any differences found later are probably not due to variability in syntactic complexity of the passages as measured by these indexes.

Table 2. Measure of Sentence Complexity

Grade Level	Passage Content	No. of T-units Per Sentence	No. of Words Per T-unit
2	nonhumorous	1.10	5.37
2	humorous	1.3	4.69
4	nonhumorous	1.39	6.48
4	humorous	1.52	6.59

Six paper-pencil, four-response, multiple-choice comprehension items were constructed for each of the four passages. Readability level estimates were calculated using the Spache Readability Formula and are reported in Table 3.

A common seventh item was included for each of the four comprehension instruments to determine whether the subject perceived that particular passage as *true*, *sad*, or *funny*. Only subjects who perceived the passage content congruently with the author were chosen for the study population.

Table 3. Comprehension Instrument Readability Estimate

Grade Level	Passage Content	Total No. of Words	No. of Sentences	No. of Hard Words	Average Sentence Length	Estimated Grade Level
2	nonhumorous	176	27	5	6.5	1.86
2	humorous	290	27	3	10.7	2.20
4	nonhumorous	282	27	13	10.4	2.99
4	humorous	281	27	6	10.4	2.41

Readability estimated by the Spache Readability Formula

Tuinman (*25, 26*) and Pyrczak (*19*) have established the desirability of "passage dependence" for items testing passage comprehension and have proposed indexes for determining it. An item is said to be

passage dependent when a subject's responses are "... under the influence of the passage" (*25*:219).

Comprehension items in this study were constructed with the importance of passage dependence in mind, and the items then were pilot-tested with adults who had not read the passages. Of the total of items for the four passages in this study, in only one instance was an item not passage-dependent for the adults. This item involved the meaning of a word in one of the passages, likely to be known by an adult but not likely to be known by a seven-year-old. Indeed, the word was *not* included in the Spache Revised Word List used in computing the readability of the passage (*23*: 201-204).

The humorous and nonhumorous passages at the corresponding readability/grade level were presented to the subjects, one at a time, for silent reading following instructions. There was no time limit, either on the silent reading of the passages or for responding to the comprehension items given to the pupils as soon as they signalled that they were finished reading a passage. The passage was collected before the comprehension items were given to a subject; this insured that there would be no reference to the passage while responding to the comprehension items. Through this method of distribution and collection of the passages and comprehension items, the probability was reduced that subjects in close proximity would be reading the same passage or answering the same items, thereby being encouraged to "check answers" with a neighbor.

All subjects in a given classroom grouping were given the passages and comprehension instruments in the same order. Six weeks later, the pupils were given the comprehension items in reversed order from the first administration. This procedure tended to counteract any order in effect in the original presentation. While random ordering of the passage and item presentations would have been a desirable design feature, the number of subjects, the unpredictability of group size which was under control of the schools, the time available in the school for testing, and the variable physical arrangements for testing made the sacrifice of this design feature necessary.

Following the initial and the later administration of the comprehension instrument, the pupils' responses were transcribed from the mimeographed instrument to sense-marked computer cards. From these data both a split-half and a Kuder-Richardson Formula 20

reliability coefficient were computed. These data are presented in Table 4. Considering that the split-half reliability is based upon the correlation between two pairs of three-item clusters, the coefficients are moderate for both initial and repeated measures with the exception of the fourth grade nonhumorous selection.

Table 4. Reliability Estimates for Comprehension Items

Grade Level	Passage Content	K-R 20 Initial Estimate	K-R 20 Final Estimate	Split Half Initial	Split Half Final
2	nonhumorous	.286	.360	.396	.426
2	humorous	.428	.452	.581	.521
4	nonhumorous	.159	-.066	.078	.015
4	humorous	.312	.315	.276	.226

The reliability coefficients for the K-R 20 calculations are also moderate (for a six-item test), with the exception of the fourth grade nonhumorous selection.

Immediately following the second administration of the comprehension test, a 2 X 2 X 4 X 2 X 2 (sex by grade by school by humorous/nonhumorous [H/NH] passage content by initial test [T] repeated test [RT]) analysis of variance for between and within independent variables was computed. The first four independent variables were within measures, and the test/retest was a between measure. Passage comprehension score was the dependent variable.

RESULTS

Among the within variables (sex, grade, school and literary content) as Table 5 shows, there were two significant main effects. There was a significant main effect between grades ($\bar{X}$ Grade 2 = 3.6513, $\bar{X}$ Grade 4 = 4.1483; $F = 18.1270$, $df = 1,405$, $p < .0001$) and between humorous (H) and nonhumorous (NH) literary content ($\bar{X} = 4.3565$, $\bar{X} = 3.4431$; $F = 61.2303$, $df = 1,405$, $p \leq .00001$).

Table 6 shows that the one within variable, Test (T)/Retest (RT) yielded a significant main effect ($\bar{X}T = 4.3822$, $\bar{X}RT = 3.4174$; $F = 155.0468$, $df = 1,406$, $p \leq .00001$). There was a significant interaction between T/RT and grade level ($\bar{X}T/2 = 4.3125$, $\bar{X}RT/2 = 2.9902$, $\bar{X}T/4$

Table 5. ANOVA for Passage Comprehension Scores for between Variables

Source of variance	df	MS	F	P
Total variance	811	1.835		
Between variance	405	2.552		
Sex	1	.182	.0843	.7691
Grade	1	39.186	18.1270	.0001
School	3	.212	.0979	.9603
H/NH Content	1	132.365	61.2303	$\leq$ .00001

= 4.4519, $\bar{X}$RT/4 = 3.8447; F = 21.2973, df = 1,406, $p < .0001$). In addition, there was a three-factor-interaction effect among grade (2/4) content (H/N) and test/retest (T/RT) ($\bar{X}$2/NH/T = 3.8504, $\bar{X}$2/NH/RT = 2.8541; $\bar{X}$2/H/T = 4.7746, $\bar{X}$2/H/RT = 3.1263; $\bar{X}$4/NH/T = 3.9879, $\bar{X}$4/NH/RT = 3.0801; $\bar{X}$4/H/T = 4.9159, $\bar{X}$4/H/RT = 4.6094; F = 16.3540, df = 1,406, $p < .0002$).

Table 6. ANOVA for Passage Comprehension Scores for Test/Retest Scores

Source of variance	df	MS	F	P
Total variance	811	1.835		
Within variance	406	1.119		
Test/Retest	1	147.671	155.0468	$\leq$ .00001
Sex/T/RT	1	.034	.0358	.8443
Grade/T/RT	1	20.284	21.2973	$<$ .0001
School/T/RT	3	.300	.3148	.8169
H/NH/T/RT	1	.025	.0266	.8649
Grade/H-NH/T-RT	1	15.576	16.3540	$<$ .0002

DISCUSSION

It could be persuasively argued that the term *comprehension* applies most appropriately to the number of correct responses to items constructed to measure a subject's understanding of the content of a reading passage immediately after it is read. A repeated administration of the same instrument after six weeks cannot be said to be measuring comprehension in the same sense. No longer is understanding of the passage the focus; instead (particularly when the passage is not reread) the focus is more upon recall or retention of the original

understandings. If we believe with Miller and Chomsky (*15*) that language processing requires short-term and long-term memory functions, it could be said that measurement of the subject in comprehension immediately following reading emphasizes short-term and delayed measurement long-term memory. Regardless of the model employed to explain the phenomenon, it appears clear that immediate response reveals the degree to which the subject comprehends the meaning of the content while the delayed measurement reveals the degree to which the original comprehension is retained. Miller and Chomsky further suggest that short-term memory is more limited and is able to deal only with the less complex surface structure of sentences, while the long-term memory processes the more complex deep structure of sentences.

Assuming identical short-term and long-term memory processes operating within subjects in this study, the retention of information about the humorous passages at a significantly higher level ($p \leq .00001$) still remains unexplained by this process.

One possible explanation for this outcome could be based upon Thorndike's Law of Effect: "Any act which in a given situation produces satisfaction becomes associated with that situation, so that when the situation recurs the act is more likely than before to recur also" (*24*:203).

The situation in this instance is the original reading of the humorous passage and responding to the comprehension items. Assuming that the reading of the passage and responding to the items is "satisfying," then it is to be expected that when the situation occurs again the responses to the comprehension items formerly associated with the pleasant experience of reading humorous content will facilitate the recall of the passage content from the first reading.

As another possible explanation of this phenomenon, the idea of "affective mobilizers" employed by Ruddell might be employed. In his Systems of Communication Model he cites evidence to support the idea that: "A system of communication must in some manner account for an individual's interests, attitudes, and values which become operationalized as his objectives and goals" (*21*:70). It is conceivable that a subject's positive interest in, attitude toward, and value for humorous literary content has a mobilizing or psychic-energy-generating effect which results in the enhancement of long-term

memory, consequently resulting in greater retention and recall of material read and comprehended earlier.

Perhaps at this point it would be well to inject a cautionary note. In view of the fact that this is an exploratory study—the effects obtained having by no means been established as replicable—it is perhaps unwise to spend too much time speculating upon a theoretical explanation for the results. A discussion of the limitations of the study and the question of further research follow.

LIMITATIONS

1. This study was based upon a limited population. While it did contain children from different socioeconomic levels, these levels were not established by rigorous methods for determining social economic status. The population was drawn from only one city in one state; attempts to generalize to other populations is not warranted.
2. Passage dependence of the comprehension items was established through the use of adult readers. Passage dependence should be determined through a pilot population similar to the experimental population.
3. Consistently high reliability for all comprehension instruments should be obtained in future studies.

FURTHER RESEARCH

This is an exploratory study of a new area. Replications of this study or of similar studies should be done to establish the consistency or noncontistency of the findings. If future studies demonstrate that humorous literary content has consistent positive effects upon retention, classroom studies in different subject matter areas might be designed. For example, a design which utilizes verbal jokes interspersed with concept learning could be studied to see what effect this design has upon subjects' learning and retention. Studies might be undertaken to determine the differential effects of various kinds of literary content upon different types of comprehension as identified by Barrett's Taxonomy of Cognitive and Affective Dimensions of Reading Comprehension (*2*).

A study could be designed which attempts to teach concepts through the use of factual content contrasted with the use of humorous content containing the same concepts.

These examples are only suggestions. The positive results of the study should stimulate further investigation of the effects of humorous literary content in learning.

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The Word

One Route to Improved Reading Comprehension: A Look at Word Meaning Skills

Beverly S. Morrison
University of Wisconsin at Madison

A reading teacher at the intermediate level has two goals for students: increasing their word knowledge and improving their reading comprehension. To achieve these goals, the reading teacher must first select appropriate materials for a particular situation. Word lists, memory gimmicks, spelling games, and tricks are generally available for teaching word meaning. A separate set of materials, usually a collection of stories with comprehension questions, is available for improving reading comprehension. When the teacher has made the selection, instruction can begin.

As a result of that instruction, word knowledge will probably increase from one word to the entire list of words used, but reading comprehension will probably not be greatly affected. While discussions and/or question-answering for the collection of stories will improve reading comprehension for that set of stories, vocabulary learning will be incidental. In other words, each goal will be a little closer, but knowledge of a specific list of words or improved reading comprehension for a specific set of stories is only part of what the intermediate level reading teacher wishes to accomplish. The teacher is concerned about increasing word knowledge and improving reading comprehension in all reading students do. How does the teacher get students to transfer what they learn in one book to reading in another? In the following discussion, the writer suggests that teaching

vocabulary that will have a direct influence on improving reading comprehension must include teaching the skills necessary to determine and comprehend word meaning.

In developing the Comprehension element of the Wisconsin Design for Reading Skill Development*, the reading project staff at the University of Wisconsin Research and Development Center has been devising a way to help teachers teach not just a specific story but instead teach the student to comprehend better *everything* he reads. The key to teaching this transferability, the staff believes, is to teach skills, the tools of reading comprehension. For the past five years, the staff has read widely and conducted research to identify these reading comprehension skills. While a developmental version of the comprehension element was released over one year ago, the staff has continued to examine all available sources to arrive at the best possible, most comprehensive compilation of literal reading comprehension skills. In evaluating the curriculum programs of school districts, the scope and sequence of basal readers and supplementary reading programs, standardized tests, and professional literature the staff has concluded that reading comprehension skills can be categorized as follows: word meaning, sentence meaning, passage meaning, and sequencing. The skills necessary to extract meaning from words involve the most basic reading comprehension skills. In order to understand the meaning of a sentence or a passage or understand sequencing within or between sentences, children must first understand the words. Since the ability to understand any given word involves or can involve all of those skills traditionally linked with vocabulary development, the staff concluded that reading comprehension and word knowledge or vocabulary development are linked by the skills common to both.

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*The Wisconsin Design for Reading Skill Development is an objective based approach to reading developed with federal funding at the University of Wisconsin Research and Development Center for Cognitive Learning. To assist teachers in individualizing reading instruction for children from age five up, the design offers 1) a means of assessment through criterion-referenced tests, 2) a unique management system which simplifies grouping for focused instruction, and 3) suggestions for teacher directed learning activities, plus references to commercially published materials already found in most schools. Five of the six elements—Word Attack, Study Skills, Self-Directed Reading, Interpretive Reading, and Creative Reading—have been completed and are available from the publisher, National Computer Systems/Educational Systems Division, Minneapolis, Minnesota. The sixth element, Comprehension, is currently undergoing field testing and revision at the University of Wisconsin at Madison.

The reading project staff determined that word meaning skills themselves can be subdivided into two strands consisting of those skills concerned with the use of context clues and those skills concerned with word parts and how word parts affect word meaning. Let's look specifically at these two strands of skills.

CONTEXT CLUES

A context clue is, essentially, a hint about the pronunciation and/or meaning of an unfamiliar word. The hint, or clue, is perceived by examining the preceding and following words and/or sentences. By studying these surrounding words and their relationships to the unknown word, a reader may be able to gain additional insight. Thus, he may be less likely to "give up" when confronted with an unfamiliar word in print.

Among reading experts, two popular views exist concerning context clues. One view is that context is used primarily as a word recognition skill. The other viewpoint is that context can be used primarily in determining the meaning of an unfamiliar or unknown word. Those who feel that context is most useful in word recognition purport that "an adequate background of experience is essential for success in the use of context clues" (*7*). Experts in this camp are of the opinion that contextual aid(s) primarily help a reader with pronunciation, and meanings of words can be derived only with appropriate background experience.

Aulls (*2*:67) states:

> McCullough (1943) and Artley (1942) originated an emphasis on the use of context as an aid to determining the meaning of an unfamiliar or unknown word. Since that time other reading experts such as Spache (1966) have made an effort to present context as a determinant of meaning in pedagogical texts....

Spache (*16*) expresses the idea that word recognition and pronunciation can often be achieved by phonic, structural, and contextual analysis. But when the unknown word is not part of the reader's vocabulary, this method does not lead to the derivation of word meaning. Contextual analysis, which takes the reader beyond pronunciation to word meaning, may be more important for the reader's comprehension.

The staff of the Wisconsin Design for Reading Skill Development is of the opinion that using context clues as an aid to word meaning is an essential, literal reading comprehension skill. The readers' backgrounds and experiences will obviously contribute to their effectiveness in using context clues. In situations where appropriate experience is lacking, however, the use of clues might elicit a general notion of word meaning which will contribute to overall comprehension. Thus, specific skill instruction in the types of context clues generally employed will aid the child in establishing a general notion even though proper experience is lacking.

In reviewing the professional literature concerning the identification of critical contextual clues, the staff found much of the evidence in conflict:

> . . . the clue categories, the response measures, the characteristics of sample populations, the conditions under which subjects were selected and tested differed markedly. . . . For example, four out of seven clues recommended by Artley and McCullough in the early 1940s (Rankin and Overholser, 1969) to be essential to the reading development of the elementary school child, recently have been shown to be the least useful clues in one study of fourth, fifth, and sixth grade children (*2*).

Because of the wide variation in findings, the staff decided to examine a list of clues compiled by Rankin and Overholser (*12*). The list includes all contextual clues mentioned by seven authorities together with a frequency count of the number of authorities who have listed each clue. The staff then analyzed these clues and grouped them into categories. After much discussion, what resulted was a revised list comprised of what the staff considered to be the essential clues. If children were to receive effective instruction in all of these clues resulting in their learning how to use them, they would have an appropriate technique to approach most any contextual situation they would find in reading. This revised list is shown in Table 1.

The explicit category includes those clues which clearly define or restate (via a sentence, phrase, or word) the meaning of the unknown word. In both writing explicit clues and locating examples of them in children's materials, it was determined that these clues varied primarily in length. That is, the clues appeared to be highly related and all were in some respect definitional. They seemed to vary only in numbers of words. Therefore, an explicit clue of one or two words was labeled a synonym clue; a phrase or complete sentence was labeled a

Table1. Context Clues

Explicit	*Implicit*
Synonym	Cause-effect
Definition	Contrast
Equivalent phrase(s)	Example
Summary	Modifying phrase

Structure
- Parenthesis
- Comas
- Dashes
- Quotes
- Underlines
- Question marks
- Type size (location)

definition clue. An equivalent phrase(s) clue included one or two sentences, and a summary clue included two or three sentences.

The implicit category includes those clues which offer additional meaning or clarification but not a definition for an unknown word. The cause-effect and the contrast-and-example types are self-explanatory. At this time, research is continuing to more precisely define, as an implicit clue, the modifying phrase. Results of this research may indicate the modifying phrase to be actually a part of another category.

The structure clues, actually typographical markings, are not important in and of themselves. They are used to clarify and to assist in pointing out either explicit or implicit contextual clues.

Regarding context clues, the discussion has concentrated thus far on identifying skills which will assist in determining the meaning of an unfamiliar word. There is one more consideration: an obscure meaning of a familiar word. Saeman (*13*) established that it is more difficult for children to learn new meanings for old words than to learn new words. The explicit clues and implicit clues plus structure clue notations listed previously are still employed, but now to redefine a familiar word.

The Wisconsin Design proposes for the context clues strand of word meaning study the following skills, defined as behavioral objectives.

1. Uses explicit clues: meaning

   The child uses explicit context clues (e.g., definition, restatement, equivalent phrase, summary, referral, synonym) to determine the meaning of an unfamiliar word in context.

2. Uses explicit clues: application
   The child determines the meaning of an unfamiliar word in a context which contains explicit clues (e.g., definition, restatement, equivalent phrase, summary, referral, synonym) and then applies that meaning in a second context where the same unfamiliar word appears but no explicit clues are present.
3. Uses implicit clues: application
   The child determines the meaning of an unfamiliar word in a context which contains implicit clues (e.g., definition, restatement, equivalent phrase, summary, referral, synonym) and then applies that meaning in a second context where the same unfamiliar word appears but no implicit clues are present.
4. Uses explicit and implicit clues: obscure meaning
   The child uses explicit and implicit context clues to determine the obscure meaning of a familiar word in context.

WORD PARTS

Clues to meaning can be found within a word itself and, in some cases, more specific clues than can be offered by context clues. Deighton (*8*:32) summarized the situation best:

> Context determines but does not always reveal the meaning of unfamiliar words. It is desirable to equip pupils with all available clues to word meaning within the words themselves so that they will neither have to guess blindly at meaning nor bring their reading to a halt from complete lack of understanding.

Thirty years ago, Gray (*9*) specified that the essential word parts to be studied should include roots, prefixes, and suffixes. Spache (*16*) concurred with Gray but added another type of word part to be considered—the combining form.

Generally, reading experts support some type of word-part study, but there is some controversy over the meaning(s) which are attached to word parts. Shepherd (*14*) expressed concern about teaching those word parts which he believes can be defined in only vague terms. One solution is offered by Spache who suggested that two types of word parts be taught: meaningful units (items with singular meanings) and visual units (variant meanings). Thorndike (*18*:73), on the other hand, in writing specifically about suffixes offered another approach:

> A suffix, like a preposition or a conjunction, may be hard to learn because it has many and subtle meanings; but that does not make it unimportant for learning or teaching. . . . It does require that we teach probabilities instead of certainties and have pupils think in terms of variables as well as constants. But is not this right and desirable in teaching the meanings not only of suffixes but of thousands of English words? A word is a living thing. Its sound and its meaning are not qualities which it has always and everywhere, like the properties of a chemical element, but are variables determined by those who speak and hear, write and read, and by the circumstances in which they say, write, hear, and see it.

The staff of the Wisconsin Design is of the opinion that word parts should be taught with meanings insofar as possible. Bolinger's suggestion (*4*), that an acceptable meaning must be one recognized by "the majority of speakers," should be the guideline for any meanings chosen. But, while some meaning should be taught, the Design staff also emphasizes that flexibility, as Thorndike suggested, is of great importance. Thus, the study of word parts should be considered as the study of an additional tool to assist in determining word meaning. Let's take as an example the word part called a *prefix*. The purpose for teaching a child about prefixes is to enable that child to make use of his knowledge and experience to recognize that a particular series of letters may, in fact, be a prefix and then to recognize that that series of letters, when it is a prefix, carries a specific meaning which could modify the meaning of the base word. In other words, instruction should be geared to enable the child to use his knowledge of prefixes to help make more sense out of what he is reading. This same purpose should also be considered when teaching suffixes, roots, and combining forms.

The Design staff proposes that to be effective the instruction for word parts must include three phases: 1) where the concept is developed that there is or can be a thing such as a prefix, suffix, root, or combining form; 2) where knowledge of a specific prefix, suffix, root, or combining form is developed so that the child has some background to draw on; and 3) where a child is provided with opportunities to use this knowledge.

In formulating the lists of specific word parts to be studied, the Wisconsin Design staff considered an important determinant to be the frequency of use for each word part. Basal readers, content area books, and standardized tests were analyzed. In addition, specific research reports and pedagogical texts were considered (*3, 5, 6, 8, 9, 15, 16, 17*). The staff believes the resulting lists of specific word parts offer a solid

core; children instructed in these word parts should have a substantial storehouse of knowledge to enable them to determine the meaning of a word.

The Wisconsin Design proposes for the word-parts strand of word meaning study the following skills, defined as behavioral objectives.

1. Uses word parts: prefixes

   The child recognizes that a prefix is a meaning bearing unit that can modify the meaning of a word in one of the following ways: (1) to signify range (i.e., ab-, ad-, en-, ex-, in-, sub-, super-, inter-); (2) to indicate time (i.e., pre-, post-, re-); (3) to signify approval or support (i.e., com-, pro-); (4) to signify opposition (i.e., de-, dis-, un-, anti-, mis-, non-, in-); (5) to signify number (i.e., bi-, tri-, di-, semi-).

2. Uses word parts: suffixes

   The child recognizes that a suffix is itself a meaning bearing unit that can modify a base word and with that modification identify the grammatical function of that base word as noun (i.e., -ance, -ation, -ism, -ure, -ity, -ment, -hood, -ness, -ty, -ess, -ist, -er, -or, -let); adjective or adverb (i.e., -less, -able, -ous, -ful, -ant, -ish, -al, -ly, -est); or verb (i.e., -en).

3. Uses word parts: combining forms

   The child recognizes that combining forms (i.e., bio, geo, graph, logy, meter, phone, photo, tele, zoo, homo, pseudo, auto, hydro, micro, aero, demo, psycho, astro, gram, magni, petro) are meaning bearing units that join together to constitute new English words.

4. Uses word parts: word roots

   The child recognizes that some unfamiliar words may consist of prefixes or suffixes combined with word roots (i.e., fac, sta, pos, fer, mit [mis], tend, spect, ten, part, cap [t], duc [t], pli) which have their origin in a language other than English.

The combination of instruction in context clues and in word parts as outlined here should allow a great deal of flexibility in determining word meaning for individuals as they read. Two additional factors need to be considered: 1) when to begin instruction and 2) application of the skill instruction.

The Design recommends that instruction in context clues and word parts should not begin until the reader has become proficient in the use of letter phonics and structural analysis. This level should occur at approximately the third grade for most children. Reaching the proper level of proficiency is, of course, an individual matter, and thus initial instruction must be adapted to the individual's needs. How quickly children progress through the four skills for each strand, as outlined, is again dependent on individual children and their capabilities. It is anticipated that for most children the instruction would be completed sometime during sixth grade.

There is no reason that instruction in all context clue skills must precede any instruction in word parts. In fact, instruction in that order should be highly discouraged. Although context clues and word parts are used together to determine word meaning, specific instruction should be focused on context clues at one time while specific instruction should be focused on word parts at another time. Instruction focusing on the skill, not on the specific word, will allow for the desired transferability.

The application of skill instruction can be handled simply if teachers indicate whenever possible outside the skill instruction period—in science class, social studies class, math class, and many other different situations—the use of context clues and/or word parts in determining word meaning. Specific focused instruction in the skills, plus attention to real life situations when those skills are used, should help to develop children's abilities to increase their word knowledge and reading comprehension regardless of what they are reading.

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Focusing Reading Comprehension Instruction: Sentence Meaning Skills

Karlyn Kamm
University of Wisconsin at Madison

The sentence meaning skills described in this paper have been identified to help teachers better focus their instruction in reading comprehension. This work was done as part of the Wisconsin Design for Reading Skill Development. A survey of elementary basal readers and related workbooks* revealed that commercial materials place little emphasis on developing specific skills which can assist a child in comprehending a sentence. More frequently, the skills emphasized relate to developing vocabulary and passage meaning. Typically, activities for these skills include work in 1) picking synonyms and antonyms, identifying basal words, and learning affixes and 2) getting the main idea of a passage and drawing conclusions from paragraphs. With such little devotion to sentence meaning skills, and thus relatively few instructional activities provided in the commercial materials, the lack of time and systematic attention given these skills by teachers in the classroom is understandable.

PURPOSE

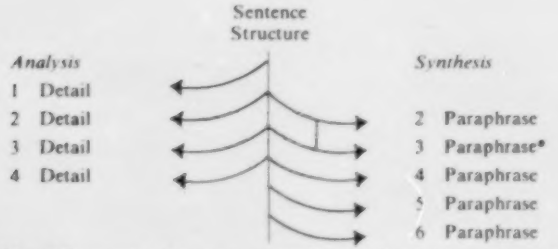
The basic assumption underlying the identification of a set or strand of sentence meaning skills is that getting meaning from a

*ABC (Litton), 1968; Ginn, 1969; Houghton Mifflin, 1971; Lyons & Carnahan, 1972; Macmillan, 1970; Merrill, 1975; Scott, Foresman (study books), 1971; Scott, Foresman, 1974.

sentence, or a complete thought, is an integral step in the reading process. After readers have begun to decode individual words and get meaning from them, they must learn to perceive groups of words and understand the ideas represented. The primary intent of the strand is to provide children with opportunities to increase their abilities to note detail, see sentence organization, attend to word order, and realize there may be a variety of ways to convey a single meaning.

WHAT ARE THE SENTENCE MEANING SKILLS?

The sentence meaning strand is developed through two sets of skills, one dealing with *synthesis* and one with *analysis*. The organization of the strand is shown schematically in Figure 1.



*Both Level 2 and Level 3 sentence structures are used to test Level 3 paraphrase skills.

Figure 1. Sentence Meaning Strand

Behavorial objectives (listed at the end of this chapter) have been written for each skill and have been tentatively leveled: those dealing with analysis (detail) are offered at grade levels one, two, three, and four; and objectives dealing with synthesis (paraphrase) are offered at grade levels two, three, four, five, and six. The organizing thread for the entire strand is *sentence structure*, with varied and generally more complex structures at each subsequent level. To put it another way, sentence complexity is the vehicle for moving through the levels of the strand. Sentence meaning is dealt with, on the one hand, through analysis, which focuses on specific details in the context of different, increasingly more complex structures. And, on the other hand, meaning is examined through synthesis, which calls for paraphrase (restatement) of different structures.

Analysis

The analysis aspect of the strand requires the learner to focus solely on a single detail within a sentence. The underlying assumption is straightforward: Sentence comprehension is built from the understanding of specific details. Too often this basic first step is overlooked or given less attention than it demands. While most learners should have little difficulty with the detail objectives, there is reason to expect that any difficulty at this most basic level must be dealt with before progress can continue.

Synthesis

The synthesis aspect of the strand involves the learner in paraphrasing given structures. Here the assumption is that one of the most effective ways in which a learner can demonstrate his understanding of a sentence is by restating it in a different but meaningfully equivalent way. Paraphrase can follow either of two strategies: rearranging words or substituting words (synonyms).

Rearranging the words or transforming a sentence alters the syntactic structure. According to Chomsky (*1*), the meaning of a sentence is very much affected by the syntactic structure. Fries (*5*) says that "the order of the words as they stand in a sentence has become for modern English an important device to show grammatical or structural relationships." And after an extensive review of the literature, Foust (*4*) concluded that it is "a well-established conclusion that word order plays an important role in the conveyance of meaning through English sentences." Because of the evidence supporting the idea of a strong relationship between word order and meaning conveyed, the skill of changing word order within a sentence without altering meaning was included as part of the paraphrase skill.

Substituting for one or more words requires the learner to express a given meaning in a different way. The process can, among other things, help him to recognize redundancies. Smith (*15*) suggested that one cause of the difficulty encountered by poor readers is their inability to make full use of syntactic and semantic redundancy. He argues that fluent readers of familiar materials go directly from the visual features of prose to the deep structure by making use of the

syntactic and semantic redundancy that exists within sequences of words. Such fluency is attained only through practice and experience.

Structure

Sentence structure provides the context in which the skills in the analysis and synthesis aspects are developed. The general specifications for the types of written sentences that should be used for instruction at each level are described in the paragraph that follows. Explicit structural specifications are described in detail in the next section of this paper.

The basic structures emphasized at each level are summarized in Figure 2. Note that the structure at each level relates to the synthesis and analysis aspects at each level by providing the context for developing the specific detail and paraphrase skills.

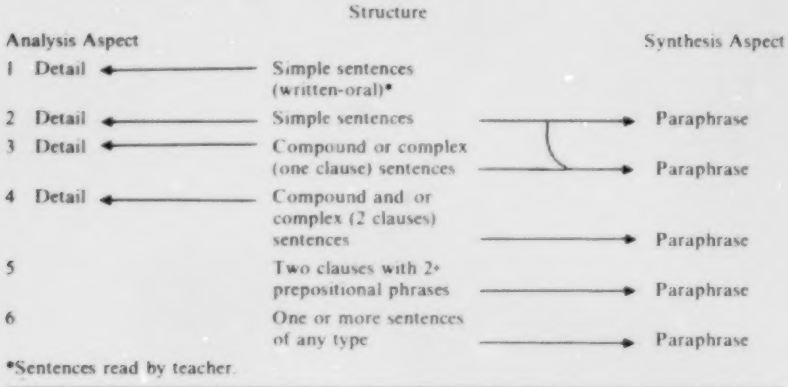


Figure 2. Basic Sentence Structures

Simple sentences are designated at grade levels one and two. The main difference is that at grade level one the sentences may be read aloud by the teacher, while at grade level two the learners are expected to work independently. Compound sentences and complex sentences with one clause are introduced at level three. At level four the sentences may include two clauses and at level five the clauses, themselves, become more complex with the addition of prepositional phrases. At level six the only restriction is that the sentences be of the types learners

typically experience by the end of elementary school. While sentence structure is systematically varied at subsequent levels in the strand to increase complexity, present knowledge would not support a claim that the levels are arranged in any hierarchy of absolute difficulty. The structures offered do provide the learner with a variety of contexts for dealing with sentence meaning. In addition to general structure, sentence length and vocabulary complexity should be considered when appropriate in selecting materials to teach the strand.

EXPLICIT STRUCTURAL SPECIFICATIONS FOR INSTRUCTIONAL EMPHASIS

To give substance to the general structures summarized in Figure 2, more explicit specifications were developed for the sentences at each level. These specifications are given in Table 1. In practice, the specification at a given level provides an additional focus for instruction designed to help learners deal with sentences as they are actually written. The specifications concern function words, substantive words, and negatives at various levels in the strand.

Function Words

Function words are included because they are the connectors of meaning in the English language. Fernald (*3*: vii) defined the role of connectives in language as follows:

> There are certain words that express the great essentials of human thought, as objects, qualities, or actions; these are nouns, adjectives, and verbs. Such words must always make up the substance of language. Yet these are dependent for their full value and utility upon another class of words, the thought-connectives, that simply indicate relation; these are prepositions, conjunctions, relative pronouns, and adverbs. If we compare words of the former class to the bricks that make up the substance of a wall, we may compare those of the latter class—the thought-connectives—to the mortar that binds the separate elements into the cohesion and unity of a single structure.

Katz and Brent (*11*) studied the developmental differences in understanding linguistic connectives and statements of relationships. Their results showed that between grades one and six there is a marked increase in children's ability to clearly verbalize both causal and temporal relationships and the manner in which they are related by connectives. Also, there appeared to be an increase in preference for the linguistic order of clauses to reflect the actual chronological order

Table 1. Specifications for Sentence Structure

Level	Basic Structure	Specific Structure		
		Function Words	Substantive Words	Negatives
1	Simple sentences (written-oral)	Coordinate: and Prepositions: positional	Objects: direct, prepositional Modifiers: adjectives, adverbs	
2	Simple sentences	Coordinate: or Prepositions: directional	Objects: indirect, prepositional, infinitive Pronouns: all	
3	Compound or complex (1 clause) sentences	Coordinate: but Subordinates: causal, relative pronouns Prepositions: temporal/abstract Common word orderings: passive voice		
4	Compound and/or complex (2 clauses) sentences	Subordinates: temporal Prepositions: all usages		
5	Two clauses with 2+ prepositional phrases	Subordinates: adversative		
6	One or more sentences of any type	Conjunctions: sentence linkers		

of events. Robertson (*13*) found a significant relationship between fourth, fifth, and sixth graders' understanding of connectives in reading and of ability in listening, reading, and written language. Her results also showed a significant variation in students' understanding of a connective at each grade level. As a result of his study, Rodgers (*14*) stated that "An awareness of connectives as signals of relationships between ideas is vital to intelligent reading and intelligible speaking."

The function words or connectives have been grouped into several categories for purposes of instructional emphasis. The categories include coordinate conjunctions, subordinate conjunctions, prepositions, and common word orderings—passive construction. The

specific structure descriptors in Table 1 show how the function words have been placed and emphasized at given levels. The meaning of each function word is always tested via the paraphrase skills.

Coordinate and subordinate conjuctions. The coordinate conjunctions are placed at levels one, two, and three. The subordinate conjunctions are introduced at level three. The conjunctions were included because there is evidence to link them with comprehension. Clark (2) studied the oral speech of young children and confirmed his prediction that coordination is the first construction to appear; and that subordination with the subordinate clause appearing in second place precedes subordination with the clause appearing in first place. Stoodt (*16*) examined the relationship between a subject's understanding of conjunctions and his reading comprehension and found the two to be significantly correlated.

Prepositions. Positional, directional, and temporal/abstract usages of prepositions are emphasized at levels one, two, and three, respectively. Foust (*4*) determined that, although using prepositions quite early, learners are unable to define their meaning. He categorized a group of frequently occurring prepositions into the positional, directional, temporal, and abstract classes and found a respective hierarchy. The placements shown in Table 1 are based on Foust's work.

Common word orderings. Function words which usually occur in a particular order, such as the *by* and *to* in the passive construction, are focused on at level D. Gleason (6:18-19) points out that the English language places special reliance on the role of syntax in the comprehension process. He states

> The burden of the message is carried by the way in which words are arranged into sentences, the syntax .... Word order is so important in English that when it becomes reversed, as it is in the passive, it becomes very hard to learn. If, for instance, you show first graders two pictures, one of a cat chasing a dog and the other of a dog chasing a cat, and tell them to point to the picture called "the cat is chased by the dog," only about half will respond correctly. They ignore the little words, including the prepositions, that signal the passive and pay attention to the word order.

Since the passive voice has been identified as a specific construction related to comprehension difficulties, it was selected for instructional emphasis.

Substantive Words

In addition to the types of function words already discussed, selected substantive words are given attention in determining the specific structures as summarized in Table 1. At levels one and two, the substantive words are dealt with in the context of simple sentences and within the detail aspect of the sentence meaning strand. At subsequent levels the substantive words may be dealt with in either the detail or the paraphrase aspect. Objects, modifiers, and pronouns were selected for special emphasis on the basis of experiences gained in developing materials for pilot versions of what has turned out to be the sentence meaning strand. The observation was that pupils who were generally able to handle assessment items dealing with the detail aspect of sentence meaning had inordinate difficulty with items in which these substantive words contributed directly to the correct responses to test items.

Negatives

Negative constructions are included in the specifications because some researchers (*12*) believe that their presence makes comprehension more difficult. Certain studies (*17, 18, 19, 20, 7, 8*) indicate that reaction time to negative sentences is longer than to affirmative sentences. Just and Carpenter (*10*) report the following:

> The fact that affirmatives are unmarked and negatives are linguistically marked is completely correlated with the finding in this study and previous studies that affirmatives are psychologically less complex than negatives.

They further suggest, from Greenberg's linguistic data (*9*), the generalization across languages that all syntactic negatives are psychologically more difficult to process than corresponding affirmatives. This evidence seems to warrant the inclusion of negatives as a specific focus for instruction designed to improve the comprehension of sentences.

SPECIFIC SKILLS AND OBJECTIVES

As shown in the discussion of Figure 1, specific skills in the sentence meaning strand are developed through two sets of objectives: 1) an analysis aspect, where the focus is on identification and understanding of details; and 2) a synthesis aspect, where the learner

paraphrases, or restates, the meanings conveyed by varied sentence structures. Sentence structure, as shown in Figure 2, is treated as a vehicle for developing the skills and stating the objectives in each aspect of the strand. Treatment of the entire strand is summarized in Table 2, which shows the sentence structures and the focus of each set of objectives at subsequent levels.

Table 2. Sentence Meaning Strand

Level	Analysis Aspect	Basic Structure	Synthesis Aspect
1	Detail	Simple sentences (written-oral)	
2	Detail	Simple sentences	Rearranges and substitutes for a phrase
3	Detail	Compound or complex (1 clause) sentences	Rearranges and substitutes for a phrase
4	Detail	Compound and/or complex (2 clauses) sentences	Rearranges and substitutes for more than a phrase (whole sentences).
5		Two clauses with 2+ prepositional phrases	Rearranges and substitutes (focuses on phrases)
6		One or more sentences of any type	Rearranges and substitutes in more than one sentence

Detail Aspect

Objectives for the detail skills (levels one, two, three, and four) require the learner to get meaning from a single substantive word or a short phrase presented in a sentence. At level one the word may be a verb, direct object, object of a positional preposition, or modifier. At level two the word or phrase may be the object of a directional preposition, an indirect object, the object of an infinitive, or a pronoun in a simple sentence with or without a negative. At level three the emphasis is on temporal and/or abstract prepositional phrases in sentences with clauses introduced by causal conjunctions or relative pronouns. At level four detail is noted in sentences with prepositional phrases and clauses introduced by temporal conjunctions.

The detail skills should be taught concurrently with the paraphrase skills. No sequence is suggested because in daily life the learner must cope concurrently with tasks that require application of both types of skills.

Paraphrase Aspect

The paraphrase objectives require the learner to 1) change word order and 2) substitute words or use synonyms in restating the meaning of sentences. To change word order, the learner examines a relationship between two or more ideas and then expresses the relationship in another way. In making restatements, emphasis is on interpreting the relationship conveyed by function words. Paraphrase through substitution places emphasis on replacing substantive words.

Paraphrasing is introduced at level two, where the child is expected both to rearrange words and to substitute in simple negative sentences which include directional prepositions. Level three is similar to level two, but the child works with passive as well as active voice sentences. Because the passive voice tends to be difficult for many learners, some of the sentence structures used to present this construction are slightly easier than those specified for use with the level three detail skills (see Figure 2) i.e., some of the sentences to be restated are simple sentences.

At level four the child rearranges or substitutes within sentences containing two clauses. At level five, substituting for prepositional phrases within complex sentences is emphasized. Level six differs from level five in that the child uses all previously learned paraphrase skills to make both fewer and more sentences from the stimulus sentence(s).

INSTRUCTION/ASSESSMENT

Including these sentence meaning skills in their reading comprehension instruction should help teachers focus their efforts when developing children's ability to learn to read. As stated earlier, *this strand of skills is not presented as a hierarchical arrangement.* Rather, it is a logical progression of skills that teachers may wish to focus on as a means of sharpening particular reading comprehension skills.

To implement these skills in a classroom reading program, teachers need to determine which commercial materials can be easily adapted for teaching the skills. It is strongly recommended that content area texts (e.g., social studies, science), as opposed to only basal readers, be used. As the teachers become experienced in working

with the skills, teachers can develop their own files of effective materials. The *Wisconsin Design for Reading Skill Development Teacher's Resource File: Comprehension* (*21*) can be used as a model for setting up a filing system. It contains a list of commercial materials pertinent to sentence meaning skills and also several example activities for each separate skill. In developing activities to teach paraphrase skills, a conscious effort should be made to include questions which require the learner to generate his restatements. Allowing the child practice in the skill of rephrasing a meaning in his own words cannot be overemphasized.

Once the skills have been integrated into the regular comprehension program, teachers may wish to determine whether the students can use the sentence meaning skills independently. *Wisconsin Tests for Reading Skill Development* (*22*) contain diagnostic tests pertinent to the sentence meaning strand. Once students have demonstrated ability to use a particular skill, however, it is recommended that they be involved in activities which require them to apply the skill in many and varied contexts.

SENTENCE MEANING OBJECTIVES

Level B

Derives meaning from sentences: Notes detail

Given a short written-oral selection of simple sentences, the child selects details: verbs, modifiers, direct objects, and objects of positional prepositions.

Level C

Derives meaning from sentences

1. Notes detail

Given a short written selection of simple positive and negative sentences, the child selects details: pronouns, indirect objects, objects of infinitives, and objects of directional prepositions.

2. Paraphrases negative and positive sentences

The child is able to a) restate simple negative sentences in the negative and in the positive, and b) restate simple positive sentences in the negative and in the positive by rearranging the order of words in the sentence and/or substituting for one or more words.

Level D

Derives meaning from sentences

1. Notes detail in sentences with a subordinate clause

The child attends to detail in sentences which are written in the active or passive voice and contain a) temporal and/or abstract prepositional phrases and b) either a terminal clause or an embedded part.

2. Paraphrases active and passive sentences

The child is able to restate sentences with no more than one subordinate clause in the passive voice and in the active voice by rearranging the order of words in the sentence and/or substituting for one or more words.

Level E

Derives meaning from sentences

1. Notes detail in sentences with more than one subordinate clause
   The child attends to detail in sentences which contain no more than two subordinate clauses.
2. Paraphrases complex sentences
   The child restates sentences which contain no more than two subordinate clauses by rearranging and/or substituting for more than a short phrase.

Level F

Derives meaning from sentences: Paraphrases complex sentences with two or more prepositional phrases

The child paraphrases complex sentences containing two or more prepositional phrases by rearranging words and substituting for more than a short phrase.

Level G

Derives meaning from sentences: Paraphrases more than one sentence

The child paraphrases one long sentence into two or more sentences, or paraphrases several sentences by rearranging words and substituting for more than a short phrase.

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The ReQuest Procedure*

Anthony V. Manzo
University of Missouri at Kansas City

The effect of questioning and purpose setting on reading comprehension has been explored many times (*1, 3, 4*). It has been noted, however, that there has been no research to test the efficacy of teaching students to raise questions independently and to set their own purposes for reading (*5*). A method was developed recently, the ReQuest Procedure, which was designed to achieve this end (*2*).

The ReQuest Procedure has been tested and found to be an effective method for improving reading comprehension as well as for activating and improving student questioning behaviors.

The ReQuest Procedure was tested by evaluating the gains made by remedial students in one-to-one remediation. Students ranged in age from seven to twenty-six years. The effectiveness of ReQuest, with remedial students under clinical conditions, led to an interest in its parallel potentialities in classroom settings. These more informal investigations are continuing; teachers are being encouraged to try ReQuest first with individual students and then with larger groups.

THE GOALS OF THE REQUEST PROCEDURE

ReQuest is designed to improve students' reading comprehension by providing an active learning situation for the development of questioning behaviors. Teachers encourage students in a specified

*Adapted from *Journal of Reading*, November 1969, 123-126.

manner to ask questions about textual material and to set their own purposes for reading. Teachers present themselves as models of questioning behavior and help students to modify their questions by providing direct feedback about the students' questions.

The verbal exchanges between students and teachers provide several instructional advantages. The interchanges often provide diagnostic information to teachers about specific learning difficulties or deficiencies of the students. Teachers can offer direct reinforcement of student behavior in two ways: by utilizing students' questioning strategies during the teacher-controlled questioning that immediately follows the students' and by statements of appreciation for the quality of the questions asked by the students. In addition, though the basic purpose of ReQuest is to help students gain independent comprehension skills, a considerable amount of content information and ideas is normally exchanged.

THE REQUEST PROCEDURE

ReQuest is designed to guide students through as many sentences of a selection as are necessary to enable students to complete the rest of the passage successfully. Guiding the students' reading through a series of sentences consists of giving the rules and playing the game.

The Rules

"The purpose of this lesson is to improve your understanding of what you read. We will each read silently the first sentence. Then we will take turns asking questions about the sentence and what it means. You will ask questions first, then I will ask questions. Try to ask the kind of questions teachers might ask in the way teachers might ask them.

"You may ask as many questions as you wish. When you are asking questions, I will close my book (or pass the book to you if there is only one between us). When I ask questions, you close your book."

Any question asked deserves to be answered as fully and honestly as possible. It is cheating for teachers to withhold information or play dumb to draw out the students. It is unacceptable for students to answer with "I don't know" since they can at least attempt to explain why they cannot answer. If questions are unclear to either party,

requests for rephrasing or clarification are in order. Responders should be ready (and make it a practice) to justify their answers by referring to the text or to expanding on background used to build or to limit answers. Whenever possible, if there is uncertainty about an answer, responders should check their answers against the text.

Playing the Game

The student and the teacher silently read the first sentence of the selection. The teacher closes the book and the student asks as many questions as he wishes. The teacher answers the questions asked and requests rephrasing of any question which cannot be answered because of poor syntax and/or incorrect logic.

After the teacher has answered all the questions the student wishes to ask, the student closes the book. The teacher asks any questions that can profitably add to the student's understanding of the content.

The teacher should be actively attempting to serve as a model of good questioning behavior so that the type of questions asked are what will be coming back when the student questions. If questions are limited to factual recall and recognition, the comprehension will be shallow. If the questions posed are thought provoking, developing answers will allow critical thinking and full comprehension.

After the first sentence, the teacher can also pose questions which require integration and evaluation of prior sentences. (So can the student.)

Improvement of student questioning behavior can be reflected by informative statements like, "That's a great question. In order to answer it I have to do such and such (or think about this and that)." Or, "Your questions make me think the way my questions are supposed to make you think."

ReQuest is continued until the student can provide a reasonable response to the question "What do you think is going to happen in the rest of this selection? Why?" (*i.e.*, What have you read that allows you to make a guess?) At this point say, "Read to the end of the selection to see if you were right."

When the first paragraph is especially brief or there is insufficient information in it to permit the formulation of a reasonable purpose for

reading or profitable diagnostic information can no longer be obtained by continuing a dialogue, the teacher may continue through a second and, on rare occasions, a third paragraph. It may be self-defeating to continue beyond this point.

Any of the traditional follow-up activities may be used: consulting an additional reference for an elaboration or verification of what had been read, vocabulary related exercises, or tasks requiring the application of newly acquired information.

SOME RECOMMENDED TYPES OF QUESTIONS

Keeping tally of the types of questions asked may be of interest to teachers wishing to try ReQuest for the first time. The following question categories are suggested:

1. Questions for which there is an *immediate reference*, e.g., "What was the second word in the sentence?" or "What did John call his dog?"
2. Questions which relate to *common knowledge* and for which answers can be reasonably expected, e.g., "What kind of animal has been associated with the name Lassie?"
3. Questions for which the teacher does not expect a "correct" response but for which *related information* can be provided, e.g., "Do you happen to know how many varieties of dogs there are?... well I just happen to...."
4. Questions for which neither the teacher nor the selection is likely to supply a "right" answer but which are nonetheless worth pondering or discussing; "I wonder why some animals make better pets than do others?"
5. Questions of a *personalized type* which only the student can answer, e.g., "Would you like to have a pet?" "Why?" "How did the different members of your family react to your first pet?"
6. Questions which are answerable, but are not answered by the selection being analyzed; *further reference* is needed, e.g., "I wonder what is the average height and weight of a collie?"
7. Questions requiring *translation*. Translation questions frequently call upon students to change words, ideas, and pictures

into a different symbolic form, e.g., translation from one level of abstraction to another, from one symbolic form to another, from one verbal form to another. "In a few words, how would you summarize what happened to Lassie?" "What is happening in this picture?" "What do yo suppose the ex-convict meant by 'up at the big house'?"

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The Effect of Passage Organization on Main Idea Comprehension at Three Response Levels

Ginger Van Blaricom
University of Wisconsin at Madison

INTRODUCTION

Identifying the main idea of a passage is a common instructional goal and is frequently included in reading comprehension tests. In spite of this seeming importance of main idea comprehension, few researchers have investigated it or, even more significantly, examined its very nature. The result is that main idea comprehension is often considered to be a single, simple comprehension task. Because the investigators in this study believe that identifying the main idea is more complex than the lack of research suggests they conducted this experiment to test their assumption that main idea comprehension is affected by certain factors inherent in the nature of the required task. The two factors identified in this study were: passage organization and type of main idea question asked. Specifically, the study was done to determine if passage organization and question type affect performance on a main idea comprehension task. A review of the literature specific to these factors is presented in the following sections. The first section is a review of the literature related to passage organization and comprehension. The second is specific to comprehension and main idea question type.

Passage Organization and Comprehension

Karlin (*4*) says that the ability to comprehend is enhanced when the reader sees the relationships among the ideas in a passage and recognizes the structure that ties the sentences together. A main idea comprehension task usually requires reading several statements in a passage and synthesizing these ideas into a single central thought. It seems reasonable, then, to assume that passage organization is a factor that may affect main idea comprehension. A discussion of the research on passage organization and comprehension might focus on three aspects: 1) the ability of the reader to organize the passage, 2) the advance organizer as an organizational aid provided for the reader, and 3) the passage organizer as an organizational aid provided for the reader.

In many research studies, the investigators have attempted to determine whether the ability to organize passage content has an effect on comprehension. Oaken, Wiener, and Cromer (*6*) studied and compared the effect of the ability to organize passage information on the ability to comprehend a passage. They found that even when readers can decode words readily, they may have difficulty comprehending a passage if they do not organize the ideas presented in a meaningful way. From the results of this study, Oaken, Wiener, and Cromer inferred that good readers organize what they read while poor readers do not. The researchers suggested 1) that reading instruction should focus on teaching organizational techniques and 2) that, for some readers, preorganized material should be provided to facilitate comprehension.

The advance organizer is one aspect of organization which has been the focus of much research on comprehension. According to Ausubel (*1*:221), the advance organizer has two specific advantages for the reader. The advance organizer:

> a) gives him a general overview of the more detailed material in *advance* of his actual confrontation with it and b) also provides organizing elements that are inclusive of and take into account most relevantly and efficiently the *particular content* contained in this material.

Ausubel and Fitzgerald (*2*) tested the effect of advance organizers on reading comprehension. When an advance organizer was provided, comprehension improved for subjects with little verbal ability but did

not for those with average or above-average ability. Smith and Hesse (*8*) investigated the effect of an oral cognitive organizer presented before reading on the comprehension of good and poor readers. This organizer familiarized the reader with the general ideas of the material assigned and with the organization strategy the author used to present the ideas. Although the findings of this study indicated that the organizer did not facilitate good readers' comprehension, the study had a significant positive effect on poor readers' ability to determine the main idea. Ausubel and Fitzgerald and Smith and Hesse inferred from their results that because good readers have developed styles of organizing, they do not benefit from the advance organizers; however, because poor readers have not developed this ability to impose order on the material, their comprehension is improved by the assistance of the advance organizer.

The effect of the passage organizer on comprehension is a third aspect of concern which also has been investigated. The passage organizer is a topic sentence that may help readers relate ideas as they read a passage. From his study of the effect of a topic sentence on the amount of recall, Gagne (*3*) concluded that the organization of facts into topics does aid retention of specific facts.

The purpose of the study described in this paper was to determine the effect of the passage organizer on the ability to identify the main idea. *Passage organizer* was defined as an explicitly stated main idea statement or a topic sentence. To determine the effect of this organizer on main idea comprehension, twenty test passages were assigned to a group of third and fourth grade children. Ten of the twenty passages had a topic sentence, and ten did not. Three main idea questions accompanied each passage. Student performance on these questions was analyzed to determine if the organizer had any effect on the ability to answer the questions.

Question Type

The level of response required by the type of main idea question was identified as another factor that might affect performance on a main idea task. A survey of a few basal reading series revealed that most of the authors of elementary reading texts believe that "getting the main idea" is an aspect of comprehension that should be included

in reading instruction. Even though the basal texts that were surveyed provided activities for teaching "main idea" there was a lack of continuity among the activities which seemed to suggest a lack of consensus concerning a definition of this aspect of comprehension. In some of the activities, students were asked to identify a topic by choosing the best title of a selection. At the lower levels of one series, selecting the best title was used to measure the ability to identify the topic and the ability to determine the main idea. At the upper levels of this same series, distinctions were made between topic, main topic, and main idea.

Otto, Barrett, and Koenke (7) found that second grade subjects did not do as well as fifth grade subjects on a task of deriving a literal main idea statement. However, they noticed that many of these second grade subjects were capable of responding with statements which approximated the main idea sentence, i.e., title-like statements. The investigators suggest that further research might confirm their inference that instruction in deriving a formal main idea statement should be postponed until the later elementary years. Williams and Stevens (9) also found that 40 percent of the children in grades three to six could, upon reading a paragraph, underline the topic sentence while 50 percent were able to write an acceptable title.

Because of the inconsistency among main idea activities in the elementary basal reading series and, because of the results of the research that has been done in this area, the present study was attempted in order to determine the effect of question type on performance on a main idea task. Question type was defined in terms of the degree of sophistication of the required response. Three response levels were identified and defined. *Topic* was defined as a one- to three-word description that told what the passage was about. *Title* was a topic that was made more explicit through the addition of one or two qualifiers that defined the limits of the contents of the passage. *Main idea statement* was defined as a complete sentence that told what the entire passage was about, i.e., topic sentence. To determine whether these were three distinct response levels, a multiple choice test was administered to a group of third and fourth grade students. The students read the same twenty passages that were developed to determine the effect of the passage organizer and then responded to the three different question types.

Purpose

In this study, two factors that might affect performance on a main idea comprehension task were identified. The purpose of this study was to investigate the effect of the two factors on student performance on a main idea comprehension test. The following questions were asked:

1. Will student performance on a main idea comprehension test be affected by the presence of a passage organizer?
2. Will student performance on a main idea comprehension test be affected by the type of main idea question asked?

PROCEDURE

Subjects

Thirty grade three and thirty grade four children from a semirural Wisconsin public school were the subjects for this study. The subjects were selected on a random basis from the total population of 150 third and fourth grade children in this school. Only third and fourth grade subjects reading at 3.0 grade level or better on the Reading Comprehension Subtests of the Stanford Achievement Test (primary levels two and three, respectively) were included in the study to assure that all subjects would be able to successfully decode the test passages.

Materials

Twenty test passages were developed for this study. Ten of the twenty passages had no organizer, i.e., topic sentence. The remaining passages were identical to the first ten in content, but topic sentences had been added. Each passage ranged in length from fifty to sixty words and had a readability score of between 2.6 and 2.9, according to the Spache Readability Formula. Most of the passages were factual, while a few were narrative. Each passage had five to six sentences that supported the main idea. Three questions testing general topic, title, and main idea statement recognition were written for each passage. The topic question required a one- to three-word general response to the main idea of the passage. The title question asked for a topic plus a qualifier. A summary of all the details in the form of a complete sentence was required in the main idea statement question. The

incorrect answer choices for each question referred to details from the passages. The questions were ordered randomly for each paragraph. Examples of factual and narrative passages, both with and without organizers, are given below. The three main idea questions tested for each passage also are given:

Factual Passage
Without Organizer

Wind helps pump water for animals to drink by turning windmills. Wind pushes sailboats and makes kites fly in the sky. Wind cools hot places by bringing in cool air. It warms cold places by bringing in warm air. Wind helps dry clothes hanging on the line. It helps seeds move from one place to another.

Factual Passage
With Organizer

Wind helps pump water for animals to drink by turning windmills. Wind pushes sailboats and makes kites fly in the sky. Wind cools hot places by bringing in cool air. It warms cold places by bringing in warm air. Wind helps dry the clothes hanging on the line. It helps seeds move from one place to another. The wind does many different things.

1. Which sentence best describes what this paragraph is about? (main idea statement question)
   a. Wind pushes sailboats and makes kites fly in the sky.
   b. Wind warms and cools places in different ways.
   c. Wind helps pump water for animals to drink by turning windmills.
   d. The wind does many different things.
2. What is this paragraph about? (topic question)
   a. Sailboats
   b. Wind
   c. Warm air
   d. Windmills
3. What is a good title for this paragraph? (title question)
   a. What wind can do.
   b. How wind pushes sailboats.
   c. How warm air moves.
   d. What turns windmills.

Narrative Passage
Without Organizer

First, she set the green and yellow paint and the white paper on the table. Then Sally dipped her brush into the paint. She brushed the paint onto the paper. She moved the brush back and forth. She wet her brush again and again. Before her family finished eating supper, Sally had finished her picture.

Narrative Passage
With Organizer

Sally painted a picture. First, she set the green and yellow paint and the white paper on the table. Then Sally dipped her brush into the paint. She brushed the paint onto the paper. She moved the brush back and forth. She wet her brush again and again. Before her family finished eating supper, Sally had finished her picture.

1. What is a good title for this paragraph?
   a. Painting a picture
   b. Eating supper

c. Setting the table for supper
d. Brushing paper

2. Which sentence best describes what this paragraph is about?
   a. Sally set the green and yellow paint and the white paper on the table.
   b. Sally dipped her brush into the paint.
   c. Sally kept her brush wet.
   d. Sally painted a picture.
3. What is this paragraph about?
   a. Eating
   b. Painting
   c. Supper
   d. Paper

Testing Procedure

Individual test booklets were assembled using a multiple matrix sampling procedure. This procedure assured that each of the twenty passages was distributed randomly among subjects.

Each subject was assigned ten different passages, five with organizers and five without. Every subject read and responded to thirty main idea questions: five topic, five title, and five main idea statement questions each on passages with and without organizers. Each of the twenty passages was read by fifteen subjects at both the third and the fourth grade levels. After the passages were assigned to the individual booklets, the items within each booklet were ordered on a random basis.

The subjects were tested within their classrooms by their regular classroom teachers. The test was administered in two sittings, approximately twenty-five minutes each. The test, however, was not timed. A five- to ten-minute break separated the sittings. Following an example item, the subjects worked independently; help with pronunciation was given when necessary.

RESULTS

The design of the study was a 3 x 2 randomized block design with repeated measures on both factors (*5*). The factors were 1) question type (topic, title, and main idea statement) and 2) paragraph organization (no organizer, organizer). The randomized block design was used because it permits testing more than one hypothesis within the same experiment and because it makes it possible to study factor interaction.

Tables 1 and 2 present the results of the analysis for the third and fourth grade subjects.

Table 1. The Analysis of Variance for Third Grade Subjects

Source	SS	df	Ms	F
Blocks	21.38333	29	.737356	5.3821 *
Organizer/No Organizer	.13889	1	.138889	.3565
Topic/Title/Main Idea	8.63333	2	4.316666	11.1409 *
Interaction	.21111	2	.105556	.27099
Residual	56.18311	145	.38746	

*$p < .01$

Table 2. The Analysis of Variance for Fourth Grade Subjects

Source	SS	df	Ms	F
Blocks	77.9778	29	2.688889	6.4179 *
Organizer/No Organizer	8.0222	1	8.02223	19.146 *
Topic/Title/Main Idea	19.9111	2	9.95554	23.76023*
Interaction	1.6444	2	.82221	1.9623
Residual	60.7550	145	.41900	

*$p < .01$

As indicated by the two tables, the organization variable was significant at the .01 level for the fourth but not the third grade subjects. Question type was significant for both grades at the .01 level. No significant interaction between factors was found for either population. The significant blocks effect for both samples was expected, but not examined in this study, as the primary interest concerned treatment rather than subject differences.

The cell means for both the third and fourth grade subjects are given in Table 3. The highest mean score possible for each response type was 5.0. The mean response for each category was very high, espceially so for the topic and title means for both passages with and without organizers.

Paragraph Organization

As indicated in Table 3, the overall mean response was greater for passages with organizers than for passages without. The means for the third graders were 4.57 with organizer and 4.52 without, while for the fourth graders the means were 4.58 and 4.16, respectively. As stated

Table 3. The Cell Means for Third and Fourth Grade Subjects by Question Type and Paragraph Organization

		Topic	Title	Main Idea	Across Topic Title Main Idea
Third	Organizer	4.83	4.56	4.33	4.57
	No Organizer	4.76	4.60	4.20	4.52
	Across Organizer	4.80	4.58	4.26	4.55
Fourth	Organizer	4.83	4.66	4.26	4.58
	No Organizer	4.63	4.26	3.60	4.16
	Across Organizer	4.73	4.46	3.93	4.37

earlier, this difference was significant for the fourth grade. Although third graders tended to have higher means on passages with organizers, the ANOVA revealed that these differences were not significant.

Question Type

Looking at the means in Table 3, it is clear that overall mean response was highest for topic, then title, then main idea statement questions, in that order. The means for the third graders were 4.8 on topic, 4.58 on title, and 4.26 on main idea statement questions, while for the fourth graders, the corresponding means were 4.73, 4.46, and 3.93. A Tukey's post hoc analysis was performed to determine if the mean difference was significant. The difference between topic and main idea statement means was significant at the .01 level for both third and fourth grade subjects. Title and main idea statement response differences were also significant for both grade levels. No significant difference was found between topic and title responses which might be attributed to the limitation of the test range (i.e., most of the subjects responded correctly to the topic and title questions).

DISCUSSION

Paragraph Organization

Will student performance on a main idea comprehension test be affected by the presence of a passage organizer? The results of this study lend additional support to the notion that paragraph

organization may affect reading comprehension. In this study, one aspect of paragraph organization was identified, and its effect on a single aspect of reading comprehension was tested. It was found that main idea comprehension was greater on passages with organizers for one sample. That is, the scores were significantly greater on passages with organizers for the fourth but not for the third grade subjects. One explanation for the third grade results is offered for discussion here. As stated in the introduction to this study, several researchers have investigated the effects of various organizers on reading comprehension. They have found that organizers significantly affect poor readers' comprehension but have little effect on comprehension for good readers. These findings have been interpreted by some to mean the following: 1) good readers impose some organizational structure on passages as they read, thus having little need of advanced or explicitly stated passage organizers; 2) poor readers, on the other hand, tend not to organize material independently, so tools or aids for organizing passage content seem to enhance their comprehension. Generalizing these findings, it is possible that a topic sentence would function more as an organizing tool for poor than for good readers. No attempt was made to differentiate good from poor readers in this study, but specifying a 3.0 or better reading level as criteria for subject selection limited the third grade sample to good readers. The fourth grade sample, on the other hand, could have included relatively poor as well as good readers. Comparing the means for the third and fourth grade subjects seems to support this point. The topic, title, and main idea statement means on passages with organizers are almost identical for the two samples; the means for passages without organizers were actually higher for the third grade than for the fourth grade subjects, implying third grade superiority. If it were true that good readers benefit little from organizational aids, then it would not be surprising that no significant differences were found between passages with and without organizers for the third grade sample, yet were evident for the more diverse fourth grade population. While this explanation is conjecture, it does appear to warrant investigation.

One implication of this study is the apparent need to evaluate the materials children are expected to comprehend. More specifically, it is important to consider passage organization when asking for main idea comprehension, bearing in mind that it is easier to comprehend the

main idea of passages with organizers than without. This conclusion does not mean that main idea should be taught using passages with topic sentences only or that all passages should have well developed topic sentences but, rather, that it is important to acknowledge the differences between the two main idea tasks. A teaching sequence that acknowledges these differences would include teaching main idea of passages with topic sentences prior to teaching main idea of passages without.

This study raises several questions about the effect of passage organization on comprehension. The role of a paragraph organizer in organizing materials for poor readers should be investigated. If inserting a topic sentence into a passage increases comprehension performance for poor readers, then more attention should be given to using topic sentences as comprehension tools for poor readers. Second, a paragraph organizer, or topic sentence, is only *one* aspect of paragraph organization. Other aspects should be identified, and their effects on reading comprehension determined. Finally, the effects of paragraph organization on tasks other than main idea comprehension should be studied. Even though a topic sentence organizes content and aids identification of the main idea, it might not facilitate comprehending passage details, understanding sequence, or drawing conclusions.

Question Type

Will student performance on a main idea comprehension test be affected by the type of main idea question asked? The findings of the study suggest that there may be degrees of sophistication of main idea comprehension. As a result of the type of question asked, two discrete main idea response levels were identified: a general response (topic or title) and a more discriminating response (main idea statement). Based on these findings, evaluation of main idea comprehension should acknowledge the difference between the levels of topic/title and main idea statement. This conclusion implies that the desired response level must be determined prior to instruction in and assessment of main idea. If the objective of instruction is a general awareness of the passage content, then topic/title questioning may be appropriate. If the goal of instruction is a finer level of main idea discrimination, then

questions that require more than a general topic response should be required. Students must be taught to read for different purposes and must be taught to respond according to the purposes that have been set. In future research studies the investigators might attempt to test the hypothesis that students at any grade level can learn to respond to a main idea task at any response level if they are instructed to read for different purposes and if they are instructed to respond at different levels. Findings might show that it is more important to instruct students to read for different purposes and to respond to a main idea question that relates to the purpose that has been set.

However, from the findings of the present research studies, a possible instructional sequence for main idea comprehension could be inferred that might begin with instruction which requires a general topic response and proceed to instruction which requires a response in the form of a formal main idea statement.

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Reciprocal Student-Teacher Questioning*

John P. Helfeldt
West Virginia University

Rosary Lalik
State University of New York at Oswego

Who asks the questions in your classroom? Most of us would have to agree that we as teachers assume the role of primary questioner. In fact, we have been encouraged and supported in this behavior by supervisors who respond positively when we ask "motivating and stimulating" questions. For some of us, a good portion of our professional education has been spent in analyzing, labeling, and formulating questions according to various categorizations. We have been confronted with writings which support the notion that effective questioning is one mark of effective teaching (*3, 5, 13*).

It may be, however, that teacher questioning is only a part of effective questioning in the classroom. Therefore, we designed a study to evaluate differences in students' interpretive reading abilities which resulted among groups where only the teacher posed questions, compared with those where both teacher and students were questioners.

During the 1960s, at least ten systems for classifying questions emerged. Presently, the methodological textbooks use many of these categorizations to illustrate the teaching of various thinking skills (*10*).

*Adapted from *The Reading Teacher*, December 1976, 283-286.

Most teachers spend a large part of their day questioning their students, assuming that those questions will facilitate their students' learning. Writers like Aschner (*1*) regard questioning as one of the basic ways by which the teacher can stimulate teaching and learning. Aschner includes remembering, reasoning, evaluating, and creative thinking among the cognitive processes which may be stimulated and states that good questioning results from identifying the specific thinking skill to be taught and constructing the form and phrasing of the question so that the selected thinking task will be required.

EMPIRICAL EVIDENCE LACKING

There is, however, little empirical research to support the theoretical views on questions and questioning (*8*). Research has not yet established whether there is a significant relationship between teacher questions and resultant student behavior (*10*). Guszak (7:220) stated, "How such questions contribute to the child's subsequent ability to comprehend reading passages remains the unknown because it is not easy to infer in cause and effect fashion that certain questions result in certain student outcomes."

Existing studies on questioning have yielded conflicting results. Ryan suggested that these discrepancies might have resulted from the narrowed attention of the researcher on the kinds of questions asked by the teacher and a concomitant lack of focus on the environment in which the questions were asked, that is, "the cluster of student-teacher activities" relevant to the questioning episode.

Educators are beginning to show an interest in questions asked by the student as well as those asked by the teacher. Tinsley (*14*) attributed the level of thought reached by the student to the questions asked both by teacher and student. Durkin (*6*) suggested that students be given opportunities to raise their own questions about what they will be reading. In a discussion of children's questioning behavior, Carner reported that the kinds of questions pupils ask are evidence that effective teaching has taken place. He argued that pupils must be taught how to question themselves in order to stimulate productive thinking.

Developing one's own questions about a reading selection is one technique for purpose setting in reading instruction. According to

Smith (*11*), establishing purposes for reading has been shown to influence the reading significantly. This ability was related positively to reading comprehension scores.

Our own study developed, in part, out of an awareness of the work on student questioning, and was an attempt to isolate two questioning strategies and determine empirically their comparative effects on the development of interpretive reading. The essential question to be answered was: Will there be differences in performance on the Interpretation subtest of the Van Wagenen Analytical Reading Scales between students who participate in a reciprocal student-teacher questioning group and those who participate in a unilateral teacher questioning group?

The twenty-two subjects were fifth grade students enrolled at the campus school at the State University College at Oswego, New York. All had scored within one standard deviation of the mean on both the Comprehensive Test of Basic Skills and the Short Form Test of Academic Aptitude. Once identified, subjects were assigned to the unilateral teacher questioning group or the reciprocal student-teacher questioning group by means of a stratified random sampling procedure based on the variables of sex and IQ.

Once the groups were formed, the eleven subjects in each were randomly assigned to instructional units consisting of three or four students. These subjects then received instruction in interpretive reading skills during forty-five minute lessons presented on fourteen consecutive school days. The prescribed lessons and questioning scripts were administered by trained examiners. The questions included in these scripts had been designed to elicit interpretive responses. Each of the learning activities was based on the procedure recommended by Durkin to facilitate reading comprehension (p. 408). Her plan involved four basic steps:

1) The teacher initiates one or two questions to motivate reading.
2) The students read the article in order to answer the motivating questions.
3) The students respond to the motivating questions and the appropriateness of their responses is discussed.
4) A more lengthy question-answer period completes the lesson.

In addition, each lesson began with a discussion of the pronunciation and meaning of vocabulary words selected from the article to be read.

The differences between the treatment received by the two groups revolved about the particular manner in which the questions were presented. In reciprocal questioning groups, students were reminded at the beginning of each session that every time they responded correctly to the examiner's question, one student could then ask the examiner a question which she was required to answer to the best of her ability. The student responding correctly had the option of initiating a question or choosing another member of the group to do so. Student *questions* were positively reinforced with socially approving comments such as "good question," "that's fine," "that makes me think."

In the unilateral groups, no mention was made of student questions. The examiner asked the questions found on the scripts without encouraging questions by students. Students who made incidental inquiries regarding the passages were answered by the examiner or another student. However, no positive reinforcement was given for these questions. Instead, emphasis was placed on correct *answers* to the examiner's questions. Accurate student responses were reinforced through the use of socially approving comments such as "very good," "that's fine."

The Interpretation subtest of the Van Wagenen Analytical Reading Scales was administered to the subjects on the school day following the final treatment session. This particular subtest was used as the criterion measure because of the degree of similarity between the skills it measures and the objectives of the learning activities presented to both treatment groups. According to Buros (2:91), the Van Wagenen Analytical Reading Scales is, among the available tests of reading comprehension, one of the best.

The t test was used to test for significance of the differences between the mean scores attained on the posttest (criterion measure) by the two treatment groups. The value of t obtained in this analysis of the data, presented in the Table, was 2.301.

The obtained value of t is larger than the critical value of 2.086 for twenty degrees of freedom at the .05 alpha level. Thus, the null hypothesis was rejected. Based on these data, it would appear that the subjects who had been in groups where students and teacher both posed questions were able to respond with a greater degree of success

	Posttest data		
	$\bar{x}$	s	t
Unilateral teacher questioning group	10.18	3.45	
Reciprocal student-teacher questioning group	13.09	2.02	
			2.301*

*Critical value of t at .05, 20 df = 2.086

than the subjects in groups where teacher questions dominated, on at least one measure of interpreting what had been read.

MORE EFFECTIVE PROCEDURE

As a result of this study, it was concluded that the reciprocal student-teacher questioning procedure was more effective in developing interpretive reading abilities than the unilateral teacher questioning procedure. It should quickly be pointed out that there may be a lack of empirical evidence supporting a conceptual base for assessing comprehension skills as they were measured in this study.

Statistical verification of the independence of each comprehension subscore should be established before a specifically designated subscore such as the Interpretation subtest of the Van Wagenen Analytical Reading Scales can defensibly serve as a measure of a student's ability in that particular skill. (In fact, such evidence is needed to establish empirically the fact that the specific skill is actually a subskill of reading comprehension.) Until tests of reading comprehension deal with this lack of verification regarding the independence of subskills measured, any research measuring growth in a subskill of reading comprehension would be subject to this same limitation.

Nevertheless, this study has implications for further research and classroom practices. It involved average fifth grade students during a limited time; studies dealing with more diverse groups of students over extended treatment schedules might provide additional insights into the effectiveness of these questioning procedures.

Also, the results suggest that encouraging average fifth grade readers to ask questions related to a reading selection, as well as responding to teacher questions designed to elicit interpretive

responses, has a positive effect on the development of interpretive reading. Encouraging students to ask their own questions and, thus, to set their own purposes for reading might be an advantageous educational procedure.

The level of thinking stimulated by a particular question has received considerable attention during the past decade. Results of this study suggest that not only the level of thinking required by the question, but also the manner in which questioning is conducted in the classroom, has an influence on student learning.

The students in the reciprocal group had opportunities not only to observe the teacher's questioning behavior, but also to imitate it. In a somewhat general manner, the results of the study raise questions regarding the effect that teacher modeling behaviors might have on student achievement. Classroom teachers might provide opportunities for students to model desired behaviors and note the resulting effects, if any, on student success and achievement in those particular behaviors.

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The Reader-Thinker's Comprehension Centered Reading Program

Dorothy J. Watson
University of Houston at Victoria

Recently I asked eleven-year-old Amy to read a rather long story about a sheep dog named Peggy who is so devoted to duty that, rather than abandon her flock in the face of repeated and brutal coyote attacks, she nearly loses her life. Peggy's mate is killed by the coyotes, her master dies of an unidentified ailment, and Peggy herself is nearly shot when mistaken for a coyote. The story is poignant and exciting, and Amy did it justice in her oral reading performance. In fact, she read it with such feeling that my flagging interest was rekindled in a story I had heard dozens of times. On the completion of the reading I dabbed my eyes, took the book from Amy, asked her to tell me everything she could remember about the story, and settled back expecting to hear a comprehensive retelling of a well-read story. To put it mildly, I was disappointed with Amy's first comment: "Wasn't there someone in the story named Peggy?" The retelling went downhill from there; it was evident immediately that Amy was a recoder (she could go from print to sound), but she was not a proficient decoder (she failed to get the author's message). Amy had attended carefully to print, sounding out word after word, even giving the expected intonation at end punctuation, dashes, and commas. Her performance was so good that she fooled me and everyone who has heard the tape recording of her reading. Unfortunately, if there were flashes of understanding, they did not manifest themselves past the momentary, oral recoding of the story.

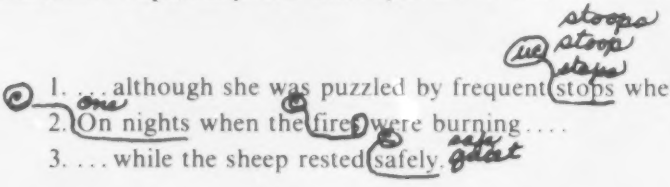
Amy was the most polished recoder I have known. The phenomenon in perhaps less obvious and spectacular manifestations, however, is familiar to all who have the opportunity to hear numbers of children read. Teachers are often heard commenting on students who "Can read, but don't understand or remember a thing they have read." Such readers have trouble, as did Amy, in discerning the plot of the most well-written story; character development is lost on such readers, and they usually haven't the slightest notion about theme or purpose. With prodding or with questions that feed information to the reader (e.g., "Was Peggy a good sheep dog?") one might get some meager details from such reader-recoders; but, for the most part, such readers are finished with the act of reading as soon as the last graphophonemic match is made. They do not ponder their new experience, store it in their memories, or build new knowledge from it.

How was Amy able to read a long, complex, well-written story without comprehending? And how did it happen that Amy was allowed to progress through the grades without being found out as a pseudoreader?

I put these questions to Amy's teacher. She was beginning to suspect that Amy was not getting much from reading, but the teacher had not become alarmed because Amy always did well on reading skills tests and worksheets. She read the required number of books, made the reports, and received her stars for them. After listening to Amy's taped performance, the teacher decided to look beyond misleading measures and to search for information that would give greater insight into Amy's use of language in the reading process. By using the *Reading Miscue Inventory* (*1*), the teacher discovered that Amy was a proficient user of graphophonemic and syntactic information. Although she made very few miscues (deviations from the expected response), the miscues she made indicated that she was far less concerned with semantic information than with sounding out the words in a pattern that sounded like English.

1. The shallow basin of Salt Creek Wash became a....
2. ...their lambs were bedding down for the night....
3. Two burros, their long gray ears sagging in drowsiness, stood stolidly in the midst of the sheep. The frantic bleating became less frequent as two sheep dogs gently urged the band....

Amy's few corrections were usually attempts to make a closer graphophonemic match or to make the sentence sound like English; semantic acceptability was less important to her.



1. . . . although she was puzzled by frequent stops when the . . . .
2. On nights when the fires were burning . . . .
3. . . . while the sheep rested safely.

Amy's retelling of the story was additional proof that beyond the surface level production she was not an active participant in the reading process.

The in-depth analysis of recorded oral reading and the retelling task of the *Reading Miscue Inventory* made it quite apparent that Amy was a reader-recorder, not a reader-thinker. Again the question: How did she get in such a quandary? As strange as it may seem, Amy may have become a pseudoreader by being a good student; that is, by doing what she was instructed to do. Amy was dutiful about sounding out unfamiliar words, she could find little words in big words, she could syllabicate, and she could assign accent marks properly. She attended to relatively discrete features of the language and, as mentioned earlier, her word attack skills worksheets were neat and correct, and she excelled on flash card and phonic drills. From her first encounter with print in school she was rewarded for attending to the form rather than the function of written language. As a result of her success with psuedoreading she appeared content and comfortable with such activities and failed to grasp the idea that reading ought to make sense.

Amy's strengths (making graphophonemic matches) contributed to her problem; her pseudoreading hid the fact that she was not a reader-thinker. Nevertheless, strengths should be recognized and reading programs should be built on them. Amy was obviously competent in word-attack skills; she needed to devote her attention to reading as concept development. Her program must promote her active interchange with print; it must be functional, that is, the instruction must relate to her needs; and it must integrate rather than fragment the systems of language. Such requirements could not be met

in a program that primarily promoted the acquisition of hierarchically arranged word-attack skills. Rather, if Amy were to become a reader-thinker, she needed a program that focused on comprehension.

The bases for a comprehension-centered program are psycholinguistic in nature:

1. Reading-thinking starts before the book is opened. That is, readers' past experiences influence their interactions with print. Readers bring to the task all their knowledge, prejudices, and interests, as well as all successes and failures with previous reading encounters. Reader-thinkers, as well as authors, contribute to the reading encounter.
2. Reading-thinking is a language-using process whereby readers select information; predict, confirm, or reject their predictions; and then comprehend. Reader-thinkers get meaning from the passage.
3. Reading-thinking continues after the book is closed. The reader-thinkers build on integrated information (that which they brought to the reading and that which was gained from the author) in order to go beyond the ideas held prior to the reading encounter.

The activities in a comprehension-centered reading program are student-centered in nature:

1. Listening-thinking activities precede and accompany reading-thinking activities. Reading to children is traditionally accepted in the kindergarten and primary classrooms but is considered by some as a waste of time for older students. Nothing could be farther from the truth; by listening to someone else read, listeners can interact with the author without fear of having to perform and without the threat of being tested. Listeners can relax and become involved in what they and the author have to bring to one another. When shared reading becomes an important, eagerly awaited activity, students quickly learn that reading is an enjoyable activity worth pursuing.
2. Reader-thinkers read and reply to notes, directions on the chalkboard, advertisements, and letters. They know that written messages are functional—that is, they convey meaningful, timely, sometimes urgent information. Children do not learn to read in order to meet nebulous future purposes such as getting jobs or becoming good citizens; rather, they read because they need and want to, right here and now.
3. Reader-thinkers are encouraged to spend a great deal of time in uninterrupted silent reading. Children unaccustomed to this activity often begin with only three or four minutes of sustained silent reading.

By setting a timer, students can concentrate on the reading task without having to check a clock. When the timer goes off, they can record the time spent in reading and the number of pages read. A brief note about how well they concentrated will remind the readers of their responsibilities in the reading activities. At subsequent reading sessions, students can increase their silent reading time by a few more minutes. Students usually enjoy being in competition with themselves; this activity can be charted so that the readers see the recorded results of their efforts.

4. Reader-thinkers have the opportunity to read to others. Nothing boosts the ego as much as the smooth reading of a newspaper article to the class, a book to a younger child, a note to parents, or an announcement at an assembly or PTA. Such polished performances require practice on the part of most readers. (The rehearsals need not be public knowledge.) In many cases (as in Amy's), the children must have the reading-thinking task of *selecting* the article to be read to the class, *deciding* on the appropriate book to be read to younger friends, and *composing* the note or announcement that subsequently will be read.
5. Reader-thinkers write their own stories, poems, notes, letters, logs, and diaries and use these as material in the reading program. The author of a language experience story becomes the reader of his/her own material, thus bridging the psycholinguistic gap between the encoder and the decoder. Child-authored materials build on the effective use of oral language, capitalize on known concepts, and utilize familiar syntax.
6. In a comprehension centered reading program, the causes and quality of reading miscues are considered to be more important information on which to build a program than is information about the number of miscues readers make. The Reading Miscue Inventory provides information about the way readers handle the graphic, phonemic, syntactic, and semantic systems of the language as they become involved in the reading process. In other words, the RMI reveals how effectively readers use the strategies of selecting, predicting, confirming or rejecting, correcting, and integrating information. Reading Strategy Lessons are prepared with readers' strengths and weaknesses in mind; the lessons deal with one problem at a time, and they avoid insult to the language and the readers by presenting whole language. Reading Strategy Lessons are linguistically sound, personally significant, and immediately applicable to student needs.
7. Reader-thinkers have opportunities to tell about their reading. Retelling a story encourages readers to become active participants in the reading process by focusing on the author's message so that it can be

retold. Reader-thinkers are able to retell or summarize an entire story or large portions of it; poorer readers need to build up to this broader task by retelling shorter whole selections. Children need to understand that interaction with the author is necessary in order to retell a story. Some students find this retelling task difficult because they are unaccustomed to it; after the reading activity they expect questions to be asked, and they expect the questions to give them enough information so that they can offer a reasonably acceptable answer. In fact, they expect the teacher or the textbook to think for them.

8. A comprehension-centered reading program is one that is rich in its opportunities for thinking. Students are encouraged to bring their past experiences to everything they hear or read. They observe and talk about differences and similarities in objects, ideas, processes, and pieces of literature. They have the opportunity to group things, ideas, and experiences together by noting common characteristics and to label these categories. Students are helped to gather data and to arrange the information according to some reasonable pattern. They are encouraged to reflect on what they have heard and read and to organize their reflections; this summarizing activity involves seeing the total situation and then deciding what the important ideas and main thrusts are. Students are helped to go beyond given information; that is, to read between the lines, to fill in the gaps, but to do so within the framework of a logically defensible extension of the observable data.

Students are encouraged to become resourceful in suggesting possible solutions to problems and to have opportunities to apply what they have learned in the past to new contexts. A comprehension-centered program helps children promote their reading and thinking of facts, rules, and procedures; it also supports their flights to fantastic worlds where they can pretend, create, imagine, and invent.

SUMMARY

When Amy's past reading instruction was investigated, some of the reasons for her plight were discovered. Amy believed that reading was a matter of going from the smallest unit of language to the largest; that all cues were equally important; that getting a graphophonemic match was the answer to most, if not all, reading problems; that oral reading was equally as important as silent reading or perhaps more important; that there was a set question-answer routine at the end of

each reading session; that it was wrong to guess or make a mistake; that worksheets and flashcards were real reading; that someone else would/should select her reading materials; and that she should receive some external reward (pat on the head, candy treat, gold star) for her reading performance.

In a comprehension-centered reading program, readers must be thinkers who interact with the author; that is, the readers contribute to, receive from, and build on the author's contribution. Experiences with print (from beginning reading and beyond) are meaning-filled, natural, and functional (*2*). There are no dryrun activities that fragment language, defy logic, and discourage the reader. Readers are confident enough to take risks and secure enough to benefit from mistakes made. They are real persons reading real and varied materials that are sometimes self-selected, sometimes teacher selected, and sometimes mutually selected by reader and teacher. Reader-thinkers know that silent reading is more efficient than oral reading and a comprehension centered program provides readers with numerous opportunities to practice their literacy; sustained silent reading periods are the rule rather than the exception. Students are encouraged to think and talk about their reading and to share their experiences with others. A comprehension centered program is a student-centered one that builds literacy and confidence in the reader.

Perhaps the most crucial factor in a comprehension centered program is the concerned teacher who knows the students, is familiar with their specific reading behaviors, is cognizant of the nature of language and how it operates in the process of reading, and is able to use such knowledge in developing a program that will help children develop their potentials as reader-thinkers.

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Using Content Materials to Sharpen Comprehension Skills

William W. Crowder
Purdue University

The development of skills in reading comprehension is one of the most crucial tasks young people are expected to accomplish during their years in elementary school. A good start in reading readiness is basic, it is agreed, but without sustained growth in comprehension, children do not become accomplished readers.

The topic to be explored here is the use of content materials to sharpen comprehension skills. Terminologies will be defined. Five avenues for improving these skills will be discussed: 1) social studies textbooks, 2) newspapers, 3) magazines, 4) lyrics in music, and 5) mathematics textbooks.

DEFINITIONS

What are content materials? They are textbooks and supplementary books used in teaching school subjects, as well as other materials which contribute to learning, such as maps, charts, globes, and science equipment. Comprehension skills are those related to helping young people "obtain appropriate meanings from the printed page" Harris (*1*). The skills include the following:

1. Acquiring an appropriate vocabulary
2. Finding answers to questions
3. Selecting main ideas in paragraphs

4. Comprehending main ideas
5. Articulating a sequence of events
6. Recalling details in a paragraph or story
7. Grasping the organization of a story
8. Following printed directions
9. Developing critical reading ability
10. Remembering the substance of a story.

USING SOCIAL STUDIES MATERIALS

The social studies textbook. To many teachers social studies textbooks are both a challenge and a dilemma. Although at least one-half of the students in a typical classroom experience difficulty in reading these texts, according to Johnson and Vardian (*2*), they often represent the only materials at hand, unless there is a good media center at school.

Two strategies to sharpen comprehension are suggested here for using social studies textbooks.

1. In *Regions and Their Needs* a five-paragraph passage entitled "What Happened in Lima?" depicts quite vividly how an unexpected rain flooded streets and created havoc in that desert city accustomed to two inches or less rainfall in a year. To check on comprehension after reading this passage, students should be asked to close their books and tell as many consequences of the flash flood as possible. Those unable to recall at least three details (five are given) should be asked to reread the passage with this purpose in mind. Another way to sharpen comprehension with this passage is to ask students to list at least three or four precautions taken by their own city or community to avoid flood damage, as opposed to those in Lima. Students will have to read the passage critically to find out what occurred in this South American city and to think about how such damage can be prevented.

2. The *Problem-Solving Booklet*, or workbook, accompanying *Regions and Their Needs* can also be used to strengthen comprehension. On page 35 there is a five-paragraph description of how water helps people. After reading it, but before answering the questions, students should be asked to close the booklet and write down or tell in their own words how water helps people.

Another way to sharpen comprehension is to ask students to answer the questions raised by each lesson title. For example, Lesson 3, page 110, asks, "Why Aren't All Deserts Irrigated?" (In paragraph 5 students find two reasons.) Teachers should check often to ascertain whether students understand or whether they have only hazy notions about the textual material. Comprehension may also be checked by statements such as, "Tell me, *in order*, how irrigation takes place." From reading the passage and studying accompanying pictures, the student might list such points as: The rain falls. It is stored in lakes. Canals bring it to individual farms. Pumps are used to move the water. Individual farms are watered.

Johnson and Vardian (*2*:485), in studying the readability of social studies texts, found that "of the 74 reading levels listed for the 37 books recommended for grades one, two, and three, only *two* were below grade level. Of the 74 reading levels, 41 were at least one grade level above that recommended by the publisher.... Of 31 textbooks recommended for grades four through six, 72 of the 93 obtained reading levels above the designated grade level."

These findings do not appear to rule out the use of textbooks but, in a larger sense, restrict their use to students of average and superior ability.

The newspaper. Newspapers are a rich resource for sharpening comprehension skills. It is suggested that the teacher select several brief news clippings, duplicate them, and ask students to do one or more of the following: 1) tell in *sequence* what happened, 2) *summarize* events, and 3) tell how the newspaper clippings *apply* to one's local community. For example, a March 1 newspaper carried this story: "Midget-sized coin may replace $1 bill." Ask students to *skim* to find why the dollar bills need to be replaced.

Here are additional ways to sharpen comprehensive skills with newspapers:

a. Cut out news articles, remove the paragraph which tells the outcome, and ask students to suggest what may have happened. (*anticipate*)
b. Read several sports articles and tell in a few sentences what happened to the teams. (*summarize*)

c. Clip the comics and cut into sections and ask students to arrange them in sequence. (*ordering*)
d. Read an article and write a headline for it. (*main idea*)
e. Read six or eight want ads telling of lost items. Describe why these are important to the owner. (*critical thinking*)
f. Read an editorial or point of view column. Tell why the writer feels as he does. (*critical thinking*)

Using magazines to teach following directions. One of the skills young people must master to succeed in the workaday world is the ability to follow printed directions. To this end it is suggested that students be asked to construct an object which requries them to carefully follow instructions. For example, the March 1976 issue of *Popular Mechanics* describes how to build a winged box kite. As the teacher prereads the directions, it becomes obvious that additional help will have to be provided in deciphering the directions, not only in this instance but often wherever young people attempt to follow directions. Here are some steps the teacher can take: 1) Simplify and rewrite directions if necessary. 2) Refer children to written directions *rather* than giving oral directions. In fact, Newcastle (5) warns that excessive oral direction by teachers tends to condition children to rely on listening rather than on learning on their own to follow instructions. 3) As a prelude to beginning an exercise, have the students first read aloud the directions. Then, ask someone to repeat the directions. Next, have several children tell in their own words what they are to do. 4) If necessary, call on one or two students who experience difficulty in this activity, asking them to repeat the directions and tell in their own words what is to be done.

Whether it be for kite construction, first experiences in food preparation and cooking, or map making, careful decoding, interpretation, analysis, and application are required in reading and following printed directions. The steps outlined previously, though seemingly repetitive, will prove useful in helping young people acquire the skills of following printed directions.

Using music to teach comprehension. Two skills related to comprehension which can be sharpened in music are acquiring an appropriate vocabulary and recalling details. The class, for example, may be studying a unit in social studies about settling of the Old West.

An appropriate song to be used and studied is "The Little Old Sod Shanty" (*3*).

I am looking rather seedy now while holding
down my claim,
And my victuals are not always of the best;
And the mice play shyly around me as I nestle
down to rest
In my little old sod shanty in the West.
The hinges are of leather and the windows
have no glass,
While the board roof lets the howling blizzard
in,
And I hear the hungry coyote as he slinks up
through the grass
Round my little old sod shanty on my claim.

Each student should be provided with a copy of all four verses, and the song should be played several times to familiarize the class with it.

Vocabulary study and comprehension. This song contains a large number of rich, colloquial words and phrases which lend themselves to vocabulary enrichment: sod shanty, seedy, holding down my claim, victuals, nestle down to rest, board roof.

To extend comprehension, students should locate and bring to class pictures of a sod shanty and be prepared to tell why houses were constructed of this material; 2) look up *seedy* and determine its meaning in the song; 3) read to find out what requirements must be met if one "held down a claim" in those early days, and do some research to find out why hinges were made of leather rather than metal, why plate glass for windows was hard to come by, or what a board roof looked like.

As further steps in sharpening comprehension skills, students should be asked to recall details of life in a shanty, such as the following: 1) "Who kept the settler company?" (*mice*). 2) "He was happy as a _____ on the land." (*clam*). 3) "What was the general condition of things in the room?" (*scattered around*). 4) "What does he seem to want most?" (*a wife*).

There are opportunities, also, in using lyrics in music to teach critical reading. In this particular song, students can be asked to 1) find phrases or sentences which reveal the settler's feelings about homesteading, 2) read aloud sentences which contain factual information about living conditions, 3) read sentences which reveal the settler's attitude, 4) locate a passage that tells his purpose in laying a claim, and 5) locate some words which depict the settler's moral values and tell why they agree or disagree with his point of view. Further suggestions for using music to teach comprehension are offered by Ritt (*6*).

Using mathematics to sharpen comprehension skills. Teachers are already aware that mathematics texts differ from others in conciseness, abstractness, and complex relations, according to Muelder (*4*). Some words take on a special meaning in math, yet have another connotation in their social setting.

Teachers can sharpen comprehension skills in the math period by taking the following steps:

1. Clarify the meanings of such words as *set, base,* and *product* as they are introduced in the math period.

	Social Usage	*Mathematical Usage*
set	Set the plates on the table.	A collection of objects that have some common characteristics.
base	Here is first base.	The first collection in a number series.
product	This is a farm product of our state.	The answer obtained when two factors are multiplied.

2. Ask children to *tell in their own words* what is to be done when soiving a story problem. The following problem, which seems easy to adults, poses some difficulty for young people: A girl is swimming in a 70′ x 30′ pool. How far does she swim if she swims four lengths of the pool? Pupils should ask themselves these six questions: What is the situation in the story problem? Can I clarify the problem by drawing a picture, diagram, or graph? What do I need to find out? Do I need to find the difference, product, sum; shall I compare, combine, or what? Do I know exactly what is to be done to find the answer? How do I know whether the answer is reasonable?

3. Ask children to answer the preceding six questions before trying to solve a problem. Try to find out whether lack of understanding word meaning is impeding their problem solving.

SUMMARY

In a real sense, all elementary textbooks are useful for sharpening comprehension skills in the classroom. These skills should be kept in mind in helping young people to 1) acquire an extensive vocabulary, 2) find answers to questions, 3) select main ideas in paragraphs, 4) comprehend main ideas, 5) articulate a sequence of events, 6) recall details in a paragraph or story, 7) grasp the organization of a story, 8) follow printed directions, 9) develop critical reading ability, and 10) remember the substance of a story.

It must be kept in mind that attaining these goals is more than a one day job of a single teacher in a classroom. It is the job of *all* teachers in elementary and secondary schools. It is a job that each student can accomplish—but not within a day, a month, or a year. It is a lifetime job.

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Improving Comprehension? That's a Good Question

Charlotte T. Smith
Livermore, California, Schools

Based upon research showing that questions and questioning strategies are instrumental in improving comprehension, the purpose of this paper is to present 1) support for the need to increase the percentage of higher cognitive questions in the instructional program; 2) evidence that questions currently included in instructional programs are predominately of the lower cognitive level; 3) sources of information for constructing higher cognitive questions, questioning strategies, and evaluating answers to comprehension questions in reading, listening, and the various content areas; and 4) suggestions for improving comprehension through the preparation of educational materials and the improvisation of materials to include higher cognitive questions for all grades and in all curricular areas.

Are you improving comprehension?

That is a good question to ask yourself. Whether you can answer this question in a positive manner will depend upon your knowledge of the cognitive levels of comprehension questions, questioning strategies, and their application in the instructional program.

What is the relationship between improved comprehension and the cognitive levels of questions and questioning strategies?

Piaget (*10*) says cognitive development occurs as the learner interacts with the environment and organizes experiences encoun-

tered. Questions are important in the organization of experiences in the learning process.

Taba and Elzey (*16*) found that, through comprehension questions of lower and higher cognitive levels and questioning strategies providing for the transition from one level of thought to another, children were able to function at higher cognitive levels of comprehension.

Smith (*14*), analyzing the length of the grammatical structures used by children in answers to questions of two cognitive levels, showed that higher cognitive questions result in answers that are significantly longer in number of words than are the answers to questions asked at the lower cognitive level. This data suggests that the thought processes involved in the answers to comprehension questions are related to the cognitive level of the questions. Higher cognitive questions result in answers which reflect the use of higher cognitive processes than do questions at the lower cognitive level.

What are the cognitive levels of comprehension questions?

Questions have been categorized into various taxonomies ranging from two to seven levels. For research purposes, questions have been analyzed in two major categories—lower and higher cognitive levels. At the lower cognitive level, Ruddell (*12*) cites the factual question and Lowery (*9*), the narrow question. At the higher cognitive level, Ruddell combines the interpretive and applicative questions and Lowery cites the broad question.

At the lower cognitive level, the questions and answers are concerned with experience, recall of immediate information, and correct answers with planned convergent outcomes. Examples of lower cognitive questions are: Who is in the story? What is the name of the main character? Have you heard this story before?

At the higher cognitive level, the questions and answers relate to the modification of the content by analysis, reconstruction, or inference of relationship. The answers may also involve creative problem solving using divergent outcomes with different acceptable responses. Examples of higher cognitive questions are: Why do you suppose the story ended as it did? What is happening in the picture? Evaporation is a new word; what do you think *evaporation* means?

What are questioning strategies?

Improving comprehension involves more than the asking of questions at the various cognitive levels. Taba and Elzey (*16*) explain that cognitive development is related to the developmental level of the learner. Cognitive development follows a sequence in which simpler and more concrete information precedes and prepares the learner for more complex and abstract knowledge. Learning consists of a series of sequential steps in which successful mastery of each step is a prerequisite for progression to the next step. Questioning strategies sequencing comprehension questions of the various levels provide for the progression of learning from the lower to the higher cognitive levels.

Questioning strategies are the planned sequences of questions. Questions usually occur in a series. The questioning process begins with a focusing question. This question focuses upon the topic to be discussed and causes the learner to call forth previous knowledge to be related with the topic of the question. The focusing question can be at either a lower or higher level, depending upon the previous experiences of the learner. An example of a focusing question at a lower cognitive level is, "What do you see in the picture?" The focusing question may be at a higher cognitive level by changing the wording of the previous question to, "What is interesting about this picture?"

The answers to the focusing question provide information indicating whether the learners have the needed information to pursue the topic further. Other questions about the topic may be asked at the same cognitive level as the one previously asked. These questions which extend the cognitive level of the questioning process are referred to as extending questions. Further information can be gained by extending the questioning on the same cognitive level to make certain that the expected information is available to the learners for the answering of the questions that follow.

When information is desired at a higher cognitive level, a raising question is asked. Raising questions provide the opportunity for the learners to associate past knowledge with that which is called for by the question and, thus, to develop new thoughts. The higher cognitive questions provide for the assimilation of data and prepare the learners for further insights on the same or related topics.

The questioning strategy continues as focusing, extending, and raising comprehension questions are asked. The following provides a brief example of a questioning strategy:

Focusing Question—Factual Level
"What is this book about?"
Extending Question—Factual Level
"What do you know about magnets?"
Raising Question—Interpretive Level
"What is especially interesting about this picture?"
Extending Question—Interpretative Level
"Why do you suppose these objects are in two piles?"

What cognitive levels of questions are most frequently asked in the instructional program?

Although improved comprehension has been related to the cognitive levels of instructional questions, research data indicate that most questions used by instructors are at the lower cognitive level (*5, 6, 12, 15*). Guszak (*5*) found that the questions teachers ask about reading are about 70 percent at the literal comprehension level. Ruddell and Williams found that teachers use twice as many factual as interpretive questions; and of greater importance is the fact that, in reply to questions, children base their answers upon factual information about 86 percent of the time (*12*). Gall (*4*) concluded, from an investigation of research spanning more than a half-century, that teachers' questions emphasize factual information about three-fourths of the time.

Why are lower cognitive questions predominant in the instructional programs?

There is little wonder why teachers ask lower cognitive questions. One may examine the instructional materials, teacher manuals, or other instructional guides in reading and in the content areas of the curriculum and calculate the percentage of lower cognitive questions. Teachers ask questions at the same level as those found in the instructional materials prepared for their use in teaching. The questions in most instructional guides and materials are predomi-

nantly factual. Sometimes no questions at all are included to guide instruction. Certainly, there is a need for training in the use of questions.

Ruddell (*11*) points out that, in the past, there has been little opportunity for educators to develop competence in understanding and using questioning strategies at the preservice or inservice levels. Gall (*4*) emphasizes the need for professional programs designed to develop effective questioning strategies and techniques. In order to improve comprehension, educators must learn how to design and to ask a greater percentage of higher cognitive questions, to use questioning strategies appropriately, and to learn how to evaluate the effectiveness of questions to promote answers indicative of the use of higher cognitive processes.

How can educators become more effective questioners?

Guidelines are presently available to assist educators in the construction and evaluation of comprehension questions and in the designing of questioning strategies. Ruddell's *Reading-Language Instruction: Innovative Practices* (*11*) presents numerous examples of questions at three cognitive levels that can be asked in the teaching of reading and listening, as well as examples of questioning strategies.

Lowery's *Learning About Instruction: Questioning Strategies 1* (*9*), a self-directed guide for designing questions in all instructional areas, focuses upon teacher initiated questioning strategies and the relationship of the strategies to students' thinking.

Two indepth minicourses in effective questioning have been developed by Far West Laboratory for Educational Research and Development. Both *Minicourse 1: Effective Questioning Elementary Level* (*2*) and *Minicourse 9: Higher Cognitive Questioning* (*3*) are designed to increase teacher effectiveness in structuring questions and improving discussion skills through the use of questions that require longer pupil responses indicative of the use of higher cognitive processes. *Minicourse 1* is designed for teachers of primary grades and *Minicourse 9*, for teachers of grades four through nine.

Resource publications devoted entirely to question construction include *Classroom Questions: What Kinds?* by Sanders (*13*) and two recent books by Hunkins, *Questioning Strategies and Techniques* (*7*) and *Involving Students in Questioning* (*6*). Both Sanders and Hunkins

base their levels of questions, in part, upon the *Taxonomy of Educational Objectives* by Bloom (*1*). These publications are intended to assist educators in formulating questions for all grades and subjects from elementary through college.

Smith (*14*) presents a method of evaluating answers to comprehension questions. The effectiveness of comprehension questions in stimulating higher cognitive processes can be determined by calculating the number of words in the communication units, a measure of linguistic and cognitive growth, used in the answers to questions. The communication unit, developed by Loban (*8*), is a linguistic unit that cannot be further divided without loss of its meaning. It consists of a grammatically independent clause with any of its modifiers. The sentence, "I see a girl with a boy," consists of one communication unit. The meaning would be lost if the sentence were segmented into smaller units. The sentence "I see a girl and I see a boy" consists of two communication units, "I see a girl and a boy" consists of only one communication unit.

Following are some examples of questions, answers, and communication unit lengths:

Lower level question: "What did the little girl find in the woods?"
Answer to question: "A gunniwolf."

The communication unit length for this answer consists of two words.

Higher level question: "What does the gunniwolf remind you of?"
Answer to question: "He looks like a real mad wolf that's going to eat something up."

The communication unit length for this answer consists of fourteen words. The contraction "that's" is counted as being two words.

Although the research by Smith evaluating the answers to comprehension questions shows that the answers to higher level questions were significantly longer than were the answers to lower level questions as measured by the average words per communication unit length, not all questions categorized as higher cognitive level

questions are consistent in eliciting higher cognitive answers. For example, in answer to the higher cognitive valuing question "How would you feel?" the brief reply might be "bad," "glad," "sad," or "happy." In order to determine the effectiveness of each specific question in eliciting the expected cognitive level responses, it is necessary to calculate the number of words used in the answers to each question. Questions which do not elicit answers at the anticipated cognitive level for which they are designed can be changed to elicit longer answers. For instance, the question pertaining to personal feelings can be altered to elicit a higher cognitive level answer by asking for a clarification of the answer, "Why would you feel bad (glad, sad, happy)?"

When should comprehension questions and strategies be constructed?

Most educators are not prepared to guide instruction and at the same time create questions and strategies. Therefore, questions and questioning strategies should be designed and evaluated before they are implemented in the instructional programs. It is not adequate to merely design questions and strategies for instructional guides. Before being included in instructional guides the questions should be tried out in actual learning environments with subjects of similar background as the ones for whom the questions have been constructed in order to determine the effectiveness of the questions to elicit answers of the anticipated communication unit lengths for which they were designed. By evaluating the questions before they are part of the instructional guides, those questions which do not fulfill the expected requirements can be modified or even eliminated. Although questions and strategies will be designed and evaluated prior to instruction, they will need to undergo further modification during actual use in the instructional program so that the specific requirements of each learner can be met.

Questions included in instructional guides should be put into question form rather than be suggestions for questions such as, "Have the students tell about the picture." This procedure will assure that the questions will be asked by the instructor at the appropriate cognitive levels.

The anticipated answers should also be included to accompany the questions to provide the instructor with immediate data upon which to judge the correctness or appropriateness of the answer and

the cognitive level as determined by the communication unit length used in the answer.

Suggested instructor-learner interaction patterns should be included with the questions, strategies, and anticipated answers. Questioning strategies may be designed for use with individuals or groups of learners. For each instructional situation, suggestions should be included to provide for the maximum number of learners to participate by formulating answers to the questions. Improved comprehension is related to increased participation by each learner answering each comprehension question. Ideally, each learner should be given the opportunity to answer each question so as to assure maximum comprehension from each instructional period. Although it may not be possible for all the answers to be verbalized or written by everyone, it is most important that each learner be given the opportunity to form thoughts about each comprehension question before the question is answered by another member of the group. The larger the number of questions answered by each learner, the more improved will be comprehension.

In what areas of instruction can comprehension be improved?

Higher cognitive questions and questioning strategies can improve comprehension in every area of knowledge. Ruddell (*11*) lists numerous examples of questions to accompany reading and listening instruction: 1) prestory questions on the picture, title, and author; 2) questions during the reading about the pictures, the characters, and the plot; and 3) post story questions on the characters, the plot, the story, and the author.

Questions could be designed to accompany every story to guide comprehension whether the stories are from basal reading texts or other sources. The questions could be prepared in separate booklets or typed on cards and placed in a card pocket or attached to the inside covers of the books. All books could become valuable resources for improving comprehension by the preparation of appropriate questions to accompany them.

Comprehension can be improved in all subjects or content areas through the designing of questions and questioning strategies to accompany the instructional materials. Although the questioning process will be similar in some ways, each area of knowledge is

somewhat unique. Questions about each subject will differ according to the body of knowledge and the organization of thought. The meanings of words peculiar to each subject can be developed for the learners through appropriate questions. In literature, questions will be concerned with interpretation of figurative language. Questions in mathematics will deal with specific information critical to problem solving. In art, drama, and music, the questions will be concerned with aesthetic judgments. Science questions will be concerned with details, exactness, and cause and effect relations. Problem solving in social science, unlike mathematics and science, will have no one correct answer.

Often the textbooks in the content areas are deterrents to questioning at higher cognitive levels because the data are presented in an orderly manner with all the complex ideas explained for the learners. The interpreting of information has already been done by the author, and the learner is presented with information to be remembered. Questioning in the content areas can be developed in the various media used to supplement the textbooks. Questions and questioning strategies should be developed to accompany films, filmstrips, recordings, videotapes, televisions, radios, lectures, demonstrations, dramas, musical and dance performances, pictorial representations, models, and works of art. One seldom finds instructional guides to accompany information presented through the various media. Comprehension questions can relate the knowledge the learner has gained from the various sources with the textbook presentation. The textbooks can then be used as sources to review and reinforce learning and to organize the data derived from the various sources, or merely as one of the useful sources.

Will the reader improve comprehension?

The use of higher cognitive questions and questioning strategies will alter the reader's role from that of being a giver of information to that of being a guide in the heuristic or discovery approach to learning. Socrates, one of the greatest teachers of all times, guided learning through a clever sequence of questions by which he led the learner to discover knowledge. The questions provided the means through which the learner applied information that was already a part of past

experiences with that information which was called forth during the questioning process. Through the process of questioning, one's role as instructor will be transformed. Likewise the role of the learner will be altered from the passive role to that of being an active participant in learning.

Improved comprehension should be a concern of each educator. One can begin improving comprehension by 1) learning more about higher cognitive questions, questioning strategies, and the evaluation of answers to questions; 2) instructing others to construct and evaluate questions and strategies; 3) preparing instructional materials that have appropriate questions, strategies, and answers for the questions; 4) creating questioning strategies to accompany the numerous media sources for transmitting information; and 5) using questioning strategies in one's own instructional programs whether at the graduate, undergraduate, high school, or elementary level of instruction.

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Radio Reading

Frank Greene
McGill University

Radio Reading derives its name from its similarities to radio announcing with a script, radio listening with only audio output, and oral reading. Radio Reading consists of a set of ground rules to control some of the actions of readers and listeners in an oral reading situation. The ground rules are that readers read and the listeners listen. If a reader wants to know a word, he puts his finger next to the word and says, "What is that word?" Clarity of the oral reading is checked by having the listener restate the message heard (i.e., comprehension is assessed by considering the understanding of the listener).

As usual, it is the teacher's job to pick materials appropriate in difficulty and in amount. Materials should be reasonable in difficulty so that readers have at least an even chance to succeed. Material needs to be neither so easy that there is no risk nor so difficult that readers are lost before they begin. Materials should be appropriate in amount so that listeners will not be overwhelmed and, therefore, unable to supply accurate information about what was heard.

In action, Radio Reading may be done in a one-to-one or group setting. Only the reader has the book open. Everyone else present (including the teacher) serves as a listener and does not use a book nor look at the reader's copy. The teacher assigns a particular passage to a student and says, "You read and we will listen. If you come to a word you need to read and you cannot figure it out, put your finger beside the word and ask, 'What is that word?' When you have finished reading, we will talk about what was heard."

In some oral reading situations, if the reader makes a mistake, it is viewed as a word attack problem and the reader's attention is drawn to the error. Such behavior interrupts the process of reading and converts the activity into a word analysis session. Note, also, that when the teacher corrects or "aids" the reader, the teacher retains the responsibility for accuracy (correctness of each word) and, thus, deprives the reader of the possibility of being responsible for meaningfulness of the reading.

There also exists an assumption, in some oral reading settings, that the reader should not be "frustrated"—that, if the reader hesitates, the teacher prompts him with the next word. Assuming that the teacher can determine where or why the reader stopped, such prompting results in removing the responsibility for the reading from the reader and retaining it for the teacher (as with correcting).

Radio Reading does not allow either correcting or prompting. If an error is made in oral reading, then the listener must be skillful enough to note the error and to remember it until the allotted text has been read. It is the reader's responsibility to present a clear, comprehensible rendering of the assigned passage.

The listener has full control over the student's oral reading, and when necessary over rereading, by the types of responses which are made after the reading has been initially completed. When the reader has finished reading, the listener responds by discussing what was comprehended. If the reading was accurately and smoothly done and the listener was attending accurately, then a brief discussion of the points made and implications understood can be rapidly made. The reader thus earns the right to go on to the next section. (Or in a group situation, the opportunity to be the radio reader may now shift.) If the listener has been able to identify errors, then by talking about what was understood and what was not clear, the listener controls what the reader needs to reexamine. The reader remains responsible for going back into the passage and clearing up the source of the confusion. That is, when a listener identifies a confusing word and section, then the reader will go back into the material and reread the word or section until clarity has been achieved. (Or, as may happen, until the cause of the reader's inability to produce an acceptable rendering has been identified by the reader and the reader invokes assistance).

Across a group of students, one may expect several types of responses to Radio Reading. Many readers will quickly understand and follow the rules. They will perform smoothly under these conditions, reading as well as they can and requesting appropriate help.

Another predictable type of response to Radio Reading is for a reader to request help, even when it is most likely that he already knows the word or that he has word attack skills to figure out the word if he would only apply his skills. When this occurs, there is only one legitimate behavior: tell the reader the requested word. It is not appropriate for the listener to play games with the reader. All responses, such as "look at it again," "look at the first letter," "sound it out," "you had it yesterday, see if you can remember it," "it rhymes with _____," are strictly forbidden. Radio Reading involves a contract between the reader and the listener. If the reader asks for a word, it is immediately supplied.

The behavior of a reader in asking for words which he already knows is best interpreted as testing the rules, not as incompetence in reading. If the listener fails to respond to a request for help, then the rules are worthless and the reader is back in the situation of having to discover what the rules really are.

A third type of response to Radio Reading is for one in which a reader does not ask for help when he needs it. If the reader simply says something to cover up the unknown word, the listener need not worry since the reader will be redirected to the point in the text by the response of the listener after the passage has been rendered. If the reader simply stops and says nothing, then the listener simply waits. In an individual setting, the listener waits some rather absurdly long period of time. If there still is no request for help, the listener asks, "What is the rule?" No matter how the student responds, the listener will restate the rule: "If you come to a word you need and you can't figure it out, put your finger by the word and say, 'What is that word?'" When such a statement is elicited or is provided again by the listener, the listener simply waits. When available time is up, simply terminate Radio Reading for that day. In a group setting, it may be easier to establish a rule about no noise, which fits in with the name Radio Reading. That is, anytime a station (reader) ceases to broadcast, the

listener will tune to a new station. If a child fails to make any verbal effort for some previously agreed upon period of time, the teacher simply cuts off the first reader's right to continue and shifts to a new radio reader.

Reading, for a competent reader, means successfully handling material which he has not already prepared. It is strongly suggested that Radio Reading be done on unprepared high interest material. In a group setting, this can be a story, which not only has high interest, but also one which can be carried over some significant period of time. In any setting, it is neither necessary nor desirable for the teacher to see the material prior to listening to it. After all, the teacher, too, has a legitimate responsibility during the reading.